



March 19, 2021

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification for T-Mobile
Crown Site ID# 876373; T-Mobile Site ID# CTNH579A
136 Wright Rd., Torrington, CT 06790
Latitude: 41° 49' 38.34" / Longitude: -73° 10' 13.97"**

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 148-foot mount on the existing 148-foot Monopole Tower located at 136 Wright Road in Torrington. The property is owned by the Jobert's & the Wright's, and the Tower is owned by Crown Castle. T-Mobile now intends to replace six (6) existing antennas and add three (3) new antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. T-Mobile is also proposing mount modifications as shown on the enclosed mount analysis.

Planned Modifications:

Tower:

Remove and Replace:

(6) Sprint Panel Antennas (**REMOVE**) - (3) RFS – APX16DWV-16DWV-S-E-A20 Antennas (**REPLACE**)

(9) Sprint radios (**REMOVE**) – (3) Ericsson Radio 4415 B66A (**REPLACE**)

Install New:

- (3) AIR6449 B41 Antennas
- (3) RFS – APXVAALL24 43-U-NA20 Antennas
- (3) Ericsson Radio 4424 B25
- (3) Ericsson Radio 4449 B71+B85
- (4) 1 5/8" hybrid cable
- (1) Platform mount modification

Ground:

Install New:

- (1) SSC 6160 cabinet
- (1) B160 battery cabinet
- (1) BB6648

- (3) BB6630
- (1) DUG20
- (1) PSU 4813 voltage booster
- (1) IXRe router

Remove:

- (1) Sprint MMBS cabinet
- (1) Sprint BBU cabinet

The facility was approved by the City of Torrington Planning and Zoning Commission by way of a Certification of Special Exception on April 12, 2000. The approval was given with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Elinor Carbone, Mayor for the City of Torrington, Martin Connor, City Planner for the City of Torrington, and the property owners.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Melanie A. Bachman

Page 3

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Zajac". The signature is fluid and cursive, with the first name "Richard" and last name "Zajac" clearly distinguishable.

Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY
(585) 445-5896
Richard.zajac@crowncastle.com

cc:

The Honorable Elinor Carbone, Mayor (*via email only to Elinor_carbone@torringtonct.org*)
140 Main Street
Torrington, CT 06790

Martin Connor, AICP, City Planner (*via email only to martin_connor@torringtonct.org*)
140 Main Street
Torrington, CT 06790

William & Jill Jobert
108 Springfield Drive
Advance, NC 27006

Zajac, Richard

From: Zajac, Richard
Sent: Friday, March 19, 2021 11:30 AM
To: Elinor_carbone@torringtonct.org
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 136 Wright Rd.pdf

Good morning Ms. Carbone,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 136 Wright Road in Torrington.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Zajac, Richard

From: Zajac, Richard
Sent: Friday, March 19, 2021 11:32 AM
To: martin_connor@torringtonct.org
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 136 Wright Rd.pdf

Good morning Mr. Connor,

Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 136 Wright Road in Torrington.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,

RICH ZAJAC

Site Acquisition Specialist

T: (585) 445-5896 M: (607) 346-7212

F: (724) 416-4461

CROWN CASTLE

4545 East River Road, Suite 320

West Henrietta, NY 14586

ORIGIN ID: ONHA (585) 445-5896

RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

TO **WILLIAM & JILL JOBERT**

108 SPRINGFIELD DRIVE

ADVANCE NC 27006

(585) 445-5896

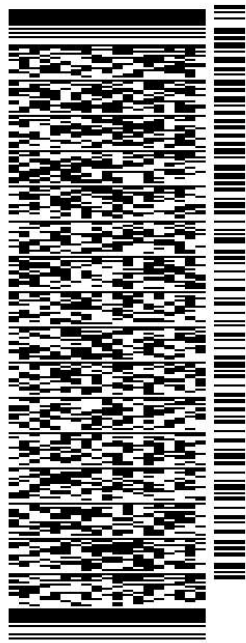
REF: 799001 7690

INV/ PO: DEPT:

SHIP DATE: 19MAR21

ACT WGT: 1.00 LB
CAD: 112911364/NET4340

BILL SENDER



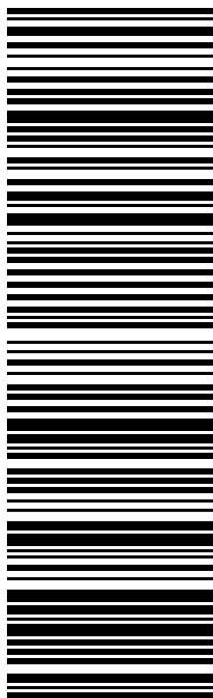
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TRK# 7732 0960 0677
0201

MON - 22 MAR 4:30P
STANDARD OVERNIGHT

XHINTA

NC-US
27006
GSO



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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Exhibit A

Original Facility Approval

City Of Torrington



PLANNING AND ZONING COMMISSION
140 Main Street • Room 311
Torrington, CT 06790

Tel.: (860) 489-2220
Fax: (860) 489-2550

April 18, 2000

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Christopher B. Fisher, Esq.
Cuddy, Feder & Worby, LLP
90 Maple Avenue
White Plains, NY 10601

Subject: Special Exception #00-3 and Site Plan #00-4
Applicant: Sprint Spectrum LP d/b/a Sprint PCS
Location: Goshen Road/136 Wright Road (Map 214-2-5)
Proposal: Construct wireless telecommunication tower and associated improvements.

Dear Attorney Fisher:

This is to confirm that at its April 12, 2000, the Planning and Zoning Commission approved the above referenced proposals with the following conditions:

1. Per Section 5.3 C. of the Regulations, the applicant shall provide a legally binding document to be reviewed and approved by the Torrington Corporation Counsel for the fall zone setback area lying outside of Sprint Spectrum's L.P.'s 75' square lease area on the John J. Wright property and within the 150' required fall zone setback, the 150' height of the tower, that prevents development within the fall zone area lying outside the 75' lease area during the time the tower is in place.
2. Per Section A12.0 of the Regulations, the special exception shall be valid for 15 years. At the end of this time period, the tower shall be removed by Sprint Spectrum LP d/b/a Sprint PCS or current owner; or a new special exception permit shall be required.
3. Per Section A 4.4.1 of the Regulations, the applicant must provide a plan for the handling of any hazardous materials using best management practices. If any hazardous materials are to be used on site, there shall be provisions for full containment of such materials. An enclosed containment area shall be provided with a sealed floor, designed to contain at least 110% of the volume of hazardous materials stored or used on the site.

4. Per Section A 9.0 of the Regulations, after the tower is operational, the applicant shall submit existing measurements of radio frequency radiation (RFR) from the facility, signed and sealed by an RF Engineer, stating that the RFR measurements are accurate and meet the maximum permissible exposure (MPE) limits as established by the FCC guidelines. The report shall be submitted to the office of the City Planner.
5. As offered by the applicant during the public hearing process, space shall be made available, at no charge, for municipal services equipment.
6. Per Section A 10.3 of the Regulations, the applicant shall submit a bond in an amount sufficient to cover the costs of removal of the regulated facility in the event the City must remove the facility. The bond amount must be approved by the City Engineer in a form acceptable to the Torrington Corporation Counsel.
7. As recommended by the Torrington Fire Chief, the applicant shall provide a gate at the entrance to the driveway secured by a Knox brand padlock to allow the Fire Department to open the gate with a master key. The driveway must be maintained in all weather conditions in order to allow emergency access.

Please note we will require you to submit a recording mylar of the site plan and two paper copies, these will be signed by the Planning and Zoning Commission Chairman. The approval block per Section 8.4.3p must be added to the site plan, as well as this certified letter of approval, which should be reduced and placed on the site plan, per Section 8.4.3.

Enclosed please find three copies of the completed Certification of Special Exception form. Please take all three copies to the City Clerk's Office where they will time stamp and record on the City Land Records one copy. Please deliver one time stamped copy to the Planning and Zoning Department and retain one copy for your records.

Your special exception approval does not take effect until it is recorded on the Land Records. Note that you can obtain a zoning permit only after the Certification is filed and certain conditions are complied with.

If you have any questions regarding this matter, please contact me.

Sincerely,



Martin J. Connor, AICP
City Planner

cc: Peter Ebersol

018

CUDDY & FEDER & WORBY LLP

90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5198

CUDDY & FEDER
1971-1993

NEL J. ALEXANDER (also CT)
THOMAS R. BERNIE (also D.C.)
JOSEPH F. CARLUCCI
KENNETH A. DUBROFF
ROBERT FEDER
CHRISTOPHER G. FISHER (also CT)
ANTHONY B. GIOFFRE II (also CT)
KAREN G. GRANIK
JOSHUA J. GRAUER
WAYNE E. HELLER (also CT)
KENNETH F. JURIST
MICHAEL L. KATZ (also N.J.)
JOSHUA E. KIMBERLING (also CT)
DANIEL F. LEARY (also CT)
BARRY E. LONG

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STAMFORD, CONNECTICUT 06901
(203) 348-4780
4 BERKELEY STREET
NORWALK, CONNECTICUT 06850
(203) 853-8001
TELECOPIER (203) 831-8250

WILLIAM S. NULL
ELISABETH N. RADOW
NEIL T. RINSKY
RUTH E. ROTH
CHALINCEY L. WALKER (also CA)
ROBERT L. WOLFE
DAVID E. WORBY

Of Counsel
LAUREN J. PETERSON-COLASACCO (also CT)
MICHAEL R. EDELMAN
ANDREW A. GLICKSON (also CT)
DEBORAH S. LEWIS (also CT)
ROBERT L. OSAR (also TX)
MARYANN M. PALERIO
ROBERT G. SCHNEIDER
LOUIS R. TAFFERA

August 21, 2000

Via Federal Express

Martin J. Connor, City Planner
City of Torrington
City Hall
140 Main Street
Torrington, Connecticut 06790

RE: Certification of Special Exception
Lease between SSLP and Wright; Torrington, CT
CT33XC078 (32244/98)

Dear Mr. Connor:

On April 12, 2000 the City of Torrington issued a Certification of Special Exception. The Certification calls for a number of documents to be provided to you. Enclosed, please find the necessary outstanding items. Kindly review the enclosed and issue a Certificate of Zoning Compliance. If there is anything else you require, please do not hesitate to call me.

This package includes the following documents:

- 1. Final Site Plan (mylar) along with two copies;

CAF&W: 265530_01



2. Fall Zone Development Restriction (This has been previously reviewed and approved by the City Attorney. The attached is a copy; the original will be recorded directly with the City Clerk.);
3. A Hazardous Waste Plan prepared by URS Greiner Woodward Clyde;
4. The original Removal Bond for Sprint's installation;
5. A time stamped copy of filed Certification of Special Exception.

Please issue a letter of zoning compliance to Sprint. Also, please let me know if it is possible for Sprint to pick up the letter at City Hall when it is complete. Kindly call me to notify me if this is possible.

Very truly yours,

Wayne Heller
Wayne E. Heller

cc: Chris Fisher, Esq. (w/ encl.)
Karen Nielsen (w/encl.)

OP

CUDDY & FEDER & WORBY LLP

80 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196

CUDDY & FEDER
1971-1985

NEL J. ALEXANDER (also CT)
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DEBORAH S. LEWIS (also CT)
ROBERT L. OBAR (also TX)
MARYANN M. PALERMO
ROBERT C. SCHNEIDER
LOUIS R. TAFFERA

April 28, 2000

Via Federal Express
Ms. Karen Nielsen
Sprint PCS
1 International Blvd., Suite 800
Mahwah, New Jersey 07495

Re: Resolution of Approval, CT33XC078; Torrington, CT

Dear Ms. Nielsen:

Enclosed please find copies of an April 18, 2000 letter I just received enclosing the Planning & Zoning Commission's special permit and site plan approval resolution for the above referenced site. There are a number of post approval conditions that must be satisfied prior to the issuance of a zoning permit and ability for Sprint to obtain a building permit. Specifically, Sprint must:

- 1) Execute a "legally binding" document to be reviewed by the City Attorney regarding the prohibition on building in the fall zoned signed by the owner of the property. As you know, Wayne Heller in our office is already working with counsel for the landlord on this matter;
- 2) Provide a plan for the handling of any hazardous materials using best management practices and providing for full containment of materials used or stored on site. It is my understanding that no such materials will be used or stored on site. Nevertheless, I think we could provide a written plan noting same and providing for

CAFAW: 249178.02

April 28, 2000
Page 2

- containment of materials used during construction which URS can draft and add to the plans;
- 3) A removal bond must be posted with the City in an amount acceptable to the City Engineer and in a form acceptable to the City Attorney. URS can provide a removal cost estimate for review by the City Engineer. We can coordinate with the City Attorney on the bond if you could provide us with the company you are using and a standard form bond to use as a starting point;
 - 4) The plans need to be revised to: show a gate at the entrance to the new driveway with the locks and keys as set forth in the resolution provided to the Fire Department. An approval block must also be added and the enclosed letter reduced and added to the plans. URS will need to make these revisions with ultimately a recording mylar and two paper copies provided for signature by the Commission Chairman.

Additionally, there are other conditions that Sprint should review including a reservation of space for municipal antennas and post operational emissions certifications (illegal but given our need to build out a number of sites in Torrington something Sprint may simply need to consent to).

Please let me know how you would like to coordinate satisfying the conditions. In the interim, I will have the three original copies of the approval resolution recorded in the City Clerk's office with one copy provided to the Planning & Zoning Department and another copy retained for Sprint's records. Also, I would appreciate it if URS notified the Building Department of the approval in writing and started working with them on the potential need for an independent structural engineer's certification and inspections given the 90 day statutory notice requirement and threshold issue for a tower of this height.

Finally, you will note that Mr. Connor conveniently cc'd the landlord's attorney with a copy of his letter to me. While, I think we can all agree that this "fall zone" matter was orchestrated by the Planner and Attorney Ebersol for financial reasons, it seems to be in Sprint's best interests to simply move forward, satisfy the conditions and clear the way to get operational.

C&F&W: 237598 05

April 28, 2000
Page 3

Please do not hesitate to contact me with any questions regarding the foregoing.

Sincerely,



Christopher B. Fisher

Enc.

CBF/cd

cc: Rich Feely
Rob O'Connor
Alitz Abadjian/Doug Roberts
Wayne Heller

CAFAW:23759R.03

To	From
Co/Dept.	Co.
Phone #	Phone #
Fax #	Fax #

**TORRINGTON
ZONING DEPARTMENT**

DR GRADING PERMIT

Date: 09/18/00 Fee: \$ 60.00 Bond \$ 1,975.00

Project Name: Sprint PCS Site CT33XC078/Long Eddy 1: Wright Property

Address: Lot 5 - Goshen Road and Lot 6 - Wright Road, Torrington, CT Map 214 Block 2 Lot 5&6

Property Owner's Name: Lot 5 - Estate of John J. Wright; Lot 6 - Mildred Wright and Estate of John
 Address: 136 Wright Road, Torrington, CT J. Wright

Applicant's Name: Sprint Spectrum, LP d/b/a Sprint PCS (If other than Owner)
 Address: 1 International Boulevard, Mahwah, NJ 07495 Telephone: (201) 684-4064

Give the purpose and description of the proposed activity: Proposed installation of an unmanned wireless telecommunications facility consisting of a 150' monopole and ground mounted equipment
The project will also include the construction of a paved access drive from wright parcel road to the tower compound.

Check types of material submitted: Narrative Plan Soil Report Calculations
 Other _____

Size of area to be disturbed with grading work (include construction drives): 24,232 Sft/A

Name of each person who will be responsible for implementing and maintaining the Erosion and Sedimentation Controls on the project:

- Baron Utilities -Don Alloco Telephone: (518) 456-8114
- Pinnacle Site Development -Steve Florio Telephone: (860) 659-9248
- _____ Telephone: _____

The grading Permit Application is hereby applied for by the undersigned applicant in accordance with the requirements of Section 7.3 of the City of Torrington Zoning Regulations. The Permit, if issued, is based upon the plan, narrative or other information as submitted. Falsification by misrepresentation or omission, or failure to comply with the conditions of the Permit shall constitute a violation of the Zoning Regulations of the City of Torrington.

Signature of Owner/Authorized Agent _____

.....

Subdivision	Application Date _____	Approval Date: _____
Site Plan	Application Date _____	Approval Date: _____
Inland Wetlands	Application Date _____	Approval Date: _____

Permit is Approved Denied for work described above and on _____ with the following conditions: _____

Approved by: _____ Approval Date: _____

Fee Schedule: The fee for a grading permit is \$60.00 for projects involving 40,000 square feet or less of disturbed area. For projects over 40,000 square feet, \$60.00 plus \$1.00 per 1000 square feet of disturbed area over 40,000 square feet. The application fee shall be due and payable upon the submission of the application.

Exhibit B

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2019.



Information on the Property Records for the Municipality of Torrington was last updated on 3/16/2021.

Parcel Information

Location:	136 WRIGHT RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	12325	Map Block Lot:	215/005/001	Acres:	19.39
490 Acres:	18.39	Zone:	R-WP	Volume / Page:	0385/0645
Developers Map / Lot:		Census:	3108-2N		

Value Information

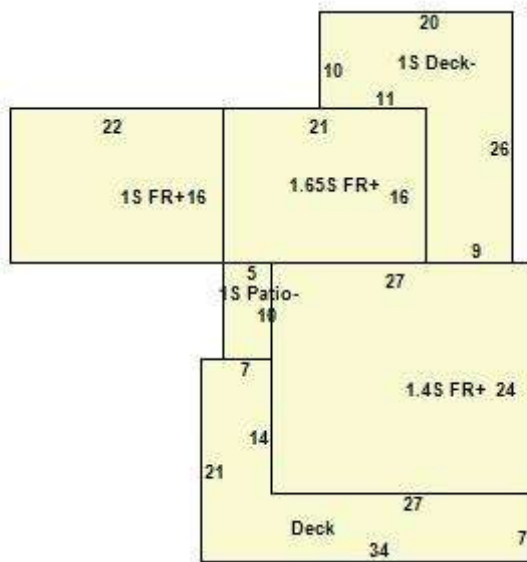
	Appraised Value	Assessed Value
Land	93,225	39,000
Buildings	109,673	76,770
Detached Outbuildings	557	390
Total	203,455	116,160

Owner's Information

Owner's Data

WRIGHT JAMES N & CAROL E SURV
104 WRIGHT RD
TORRINGTON CT 06790

Building 1



Building Use:	Single Family	Style:	Cape	Living Area:	1,814
Stories:	1.65	Construction:	Wood Frame	Year Built:	1941
Total Rooms:	9	Bedrooms:	4	Full Baths:	3
Half Baths:	0	Fireplaces:	0	Heating:	FHA
Fuel:	Oil	Cooling Percent:	0	Basement Area:	1,336

Basement Finished Area:	352	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Clapboards	Units:	01		

Special Features

Generator	1
-----------	---

Attached Components

Type:	Year Built:	Area:
Wood Deck	2020	340
Wood Deck	1941	344
Concrete Patio	1941	50

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Wood Deck	1999	0.00	0.00	128

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
WRIGHT JAMES N & CAROL E SURV	0385	0645	01/31/1986	Warranty Deed	No	\$0

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
20-40 Z	Residential	06/03/2020		Closed	6 1/2 X 52 WRAP AROUND PORCH

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
20-1 BP	Building	01/07/2020			REPL 6 ANTENNAS & RADIO HEADS FOR AT&T
19-1188 MEC	Mechanical	11/16/2019			SET 420 LB TANK & RUN LINE TO HEATER & OUTLET FOR GENERATOR
19-1037 MEC	Mechanical	07/22/2019			INSTALL NEW GAS STOVE
18-2387	Building	12/27/2018			ADDITION TO EXISTING CELL TOWER-ANTENNAS/RADIO CABINETS/GENERATOR/10 X 15 CONC PAD= PP
18-2371 Z	Commercial	12/20/2018			NEW ANTENNA PLATFORM/8 ANTENNAS/2 RADIO CABINETS/GENERATOR
17-1851	Building	09/27/2017		Closed	SRINT TO ADD 3 ANTENNAS & 3 RRU'S TO EXISTING CELL TOWER
17-1768 Z	Commercial	09/18/2017		Closed	ADD 3 ANTENNAS & ASSOC EQUIP TO EXISTING CELL TOWER
17-1589	Electrical	08/24/2017		Closed	WIRE NEW AT&T CELL SITE/INSTALL NEW 200AMP LOADCENTER/FEEDER
17-1487	Building	08/08/2017		Closed	INSTALL 3 ANTENNAS & ASSOCIATED EQUIP ON CELL TOWER=PP
15-69	Building	01/15/2015		Closed	ANTENNA MODIFICATION=PP

Information Published With Permission From The Assessor

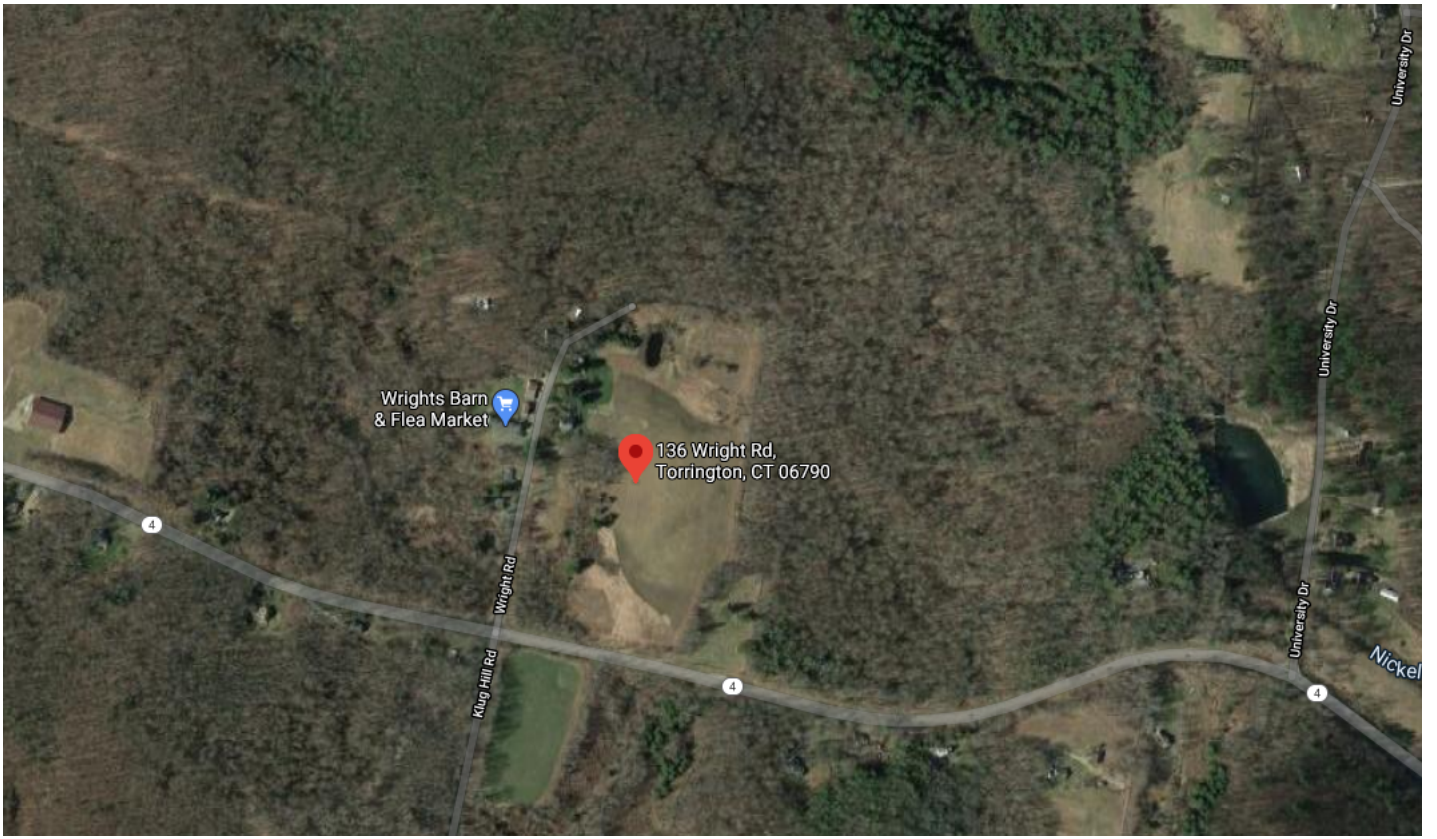


Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CTNH579A
T-MOBILE SITE NAME: CTNH579A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 148'-0"

BUSINESS UNIT #: 876373
SITE ADDRESS: 136 WRIGHT RD.
 TORRINGTON, CT 06790
COUNTY: LITCHFIELD
JURISDICTION: CITY OF TORRINGTON

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67D5998C_1xAIR+1QP+1OP

T-Mobile
 35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

CROWN CASTLE
 1500 CORPORATE DRIVE
 CANONSBURG, PA 15317

INFINIGY
 FROM ZERO TO INFINIGY
 the solutions are endless
 1033 Watervliet Shaker Rd | Albany, NY 12205
 Phone: 518-690-0790 | Fax: 518-690-0793
 www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH579A

BU #: 876373
LONG EDDY / WRIGHT
PROPERTY

 136 WRIGHT RD.
 TORRINGTON, CT 06790
 EXISTING 148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	02/17/21	RCD	PRELIMINARY	SS
0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS

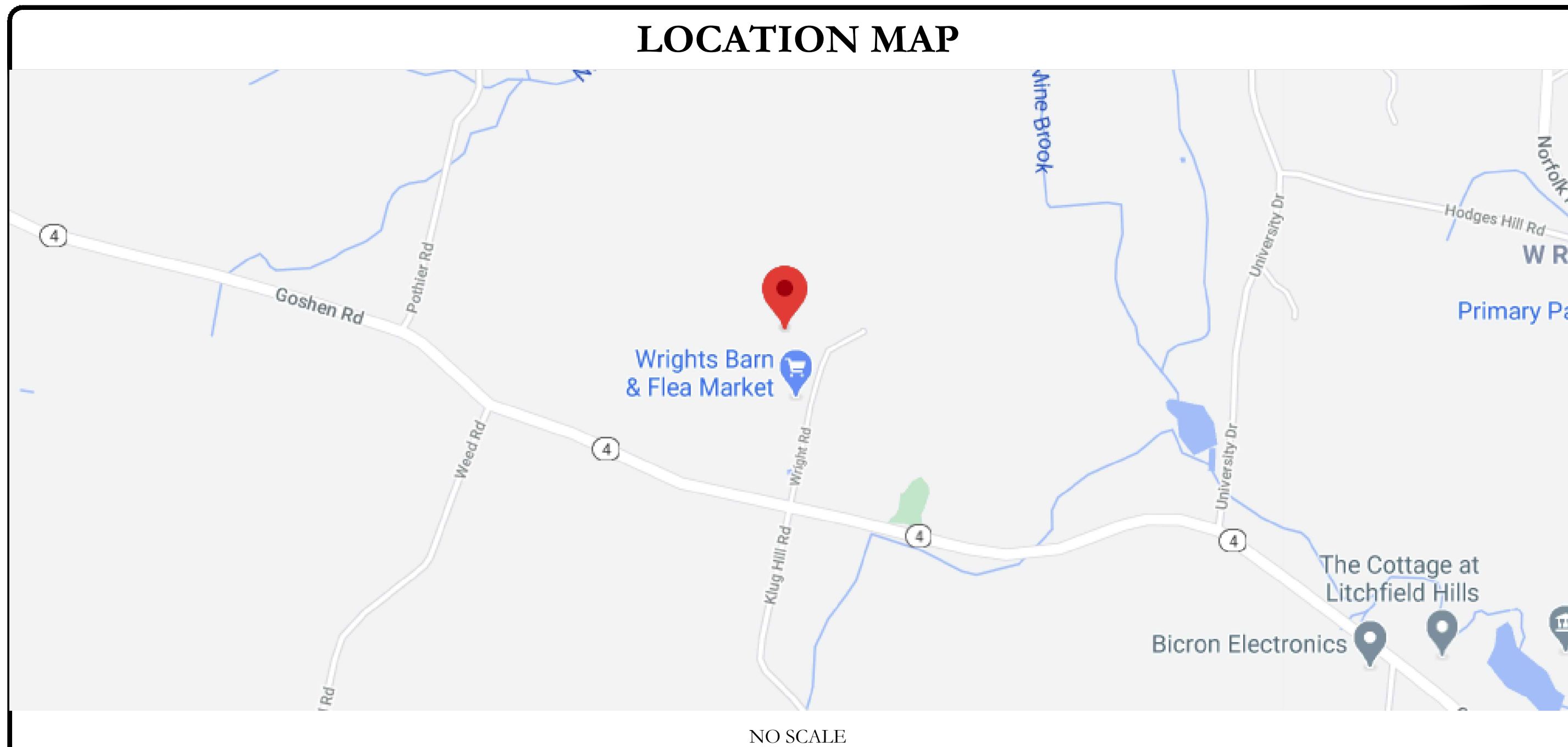
SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	LONG EDDY / WRIGHT PROPERTY
SITE ADDRESS:	136 WRIGHT RD. TORRINGTON, CT 06790
COUNTY:	LITCHFIELD
MAP/PARCEL #:	215/005/001
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.82733000° (41° 49' 38.34")
LONGITUDE:	-73.17050000° (-73° 10' 13.97")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	1099.0 FT
CURRENT ZONING:	R-WP
JURISDICTION:	CITY OF TORRINGTON
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	JAMES N. WRIGHT & SURV E. CAROL 104 WRIGHT ROAD TORRINGTON, CT 06790
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR ----. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER (518) 373-3507
	JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- REMOVE (6) ANTENNAS
- REMOVE (9) RRHS
- REMOVE (1) PLATFORM
- REMOVE (3) HYBRID CABLES
- INSTALL (9) ANTENNAS
- INSTALL (9) RRHS
- INSTALL (4) HYBRID CABLES
- MODIFY (1) PLATFORM

GROUND SCOPE OF WORK:

- REMOVE EXISTING CABINETS
- INSTALL (1) 6160 & (1) B160 BATTERY CABINETS
- INSTALL (1) PSU4813 BOOSTER IN (P) CABINET
- INSTALL (3) BB6630 IN (P) CABINET
- INSTALL (1) BB6648 IN (P) CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET

NOTE:
 PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
DATED:	02/01/2021
RFDS REVISION:	1
DATED:	01/15/2021
ORDER ID:	538775
REVISION:	0

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 (800) 922-4455 CBYD.COM
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APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

STATE OF CONNECTICUT
 SAHUEL SAKANQUE
 34916
 LICENSED ENGINEER
 3/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1	REVISION: 1
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CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADDRESS TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS," IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GSES) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft. OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: T-MOBILE
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (w/c) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WFF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER.....40 ksi
#5 BARS AND LARGER.....60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER.....2"
#5 BARS AND SMALLER.....1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS.....3/4"
BEAMS AND COLUMNS.....1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THW, THN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THW, THN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS,90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METEERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- GREEN SEWERS AND DRAIN LINES

ABBREVIATIONS:

- ANT ANTENNA
- (E) EXISTING
- FIF FACILITY INTERFACE FRAME
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- GSM GLOBAL SYSTEM FOR MOBILE
- LTE LONG TERM EVOLUTION
- MGB MASTER GROUND BAR
- MW MICROWAVE
- (N) NEW
- NEC NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLAN
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RBT REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRH REMOTE RADIO HEAD
- RRIU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMD TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT



T-MOBILE SITE NUMBER:
CTNH579A

BU #: 876373

LONG EDDY / WRIGHT PROPERTY

136 WRIGHT RD.
TORRINGTON, CT 06790

EXISTING 148'-0" MONOPOLE

ISSUED FOR:

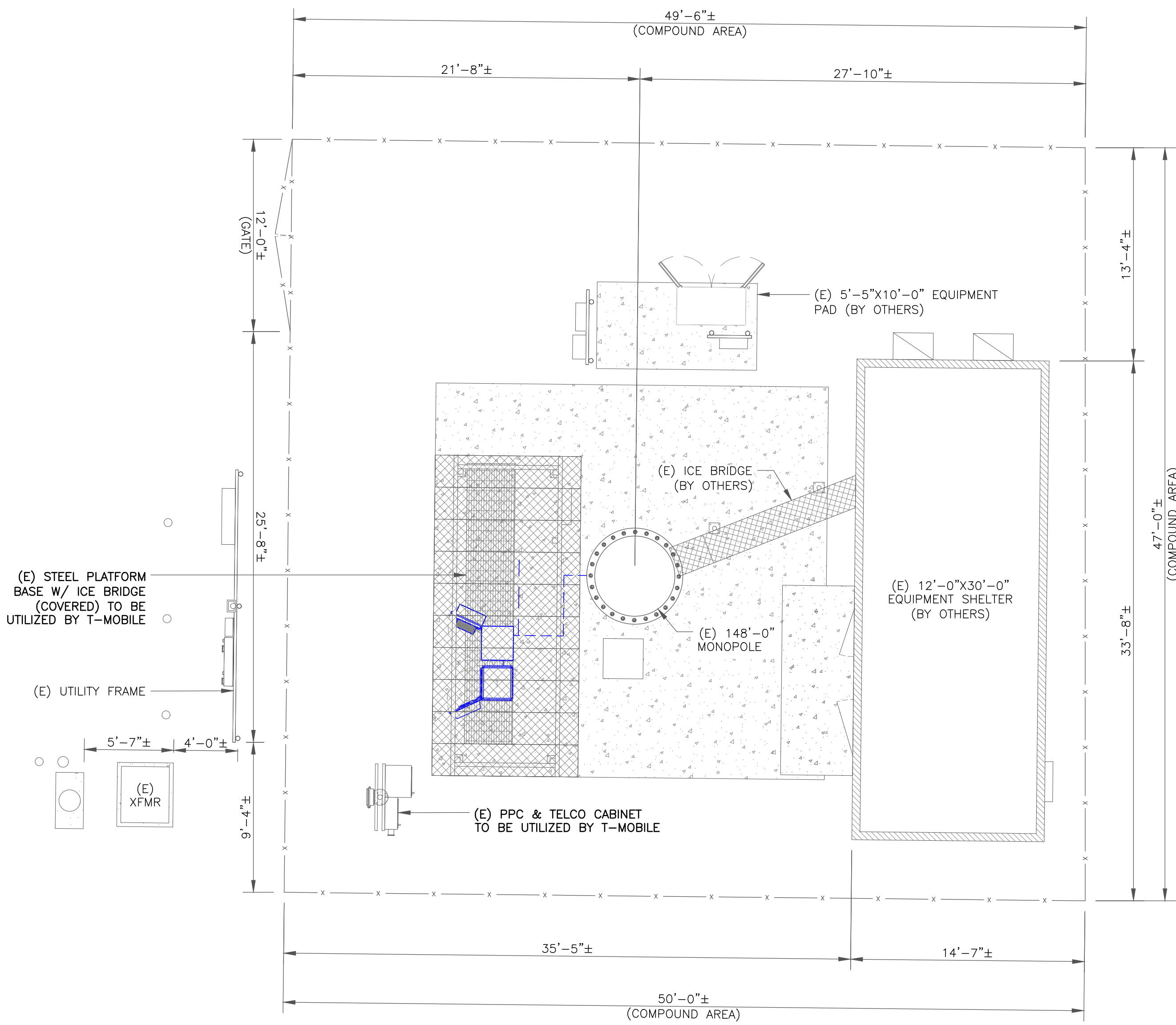
REV	DATE	DRWN	DESCRIPTION	DES./QA
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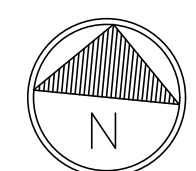
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SHEET NUMBER: T-2
REVISION: 1

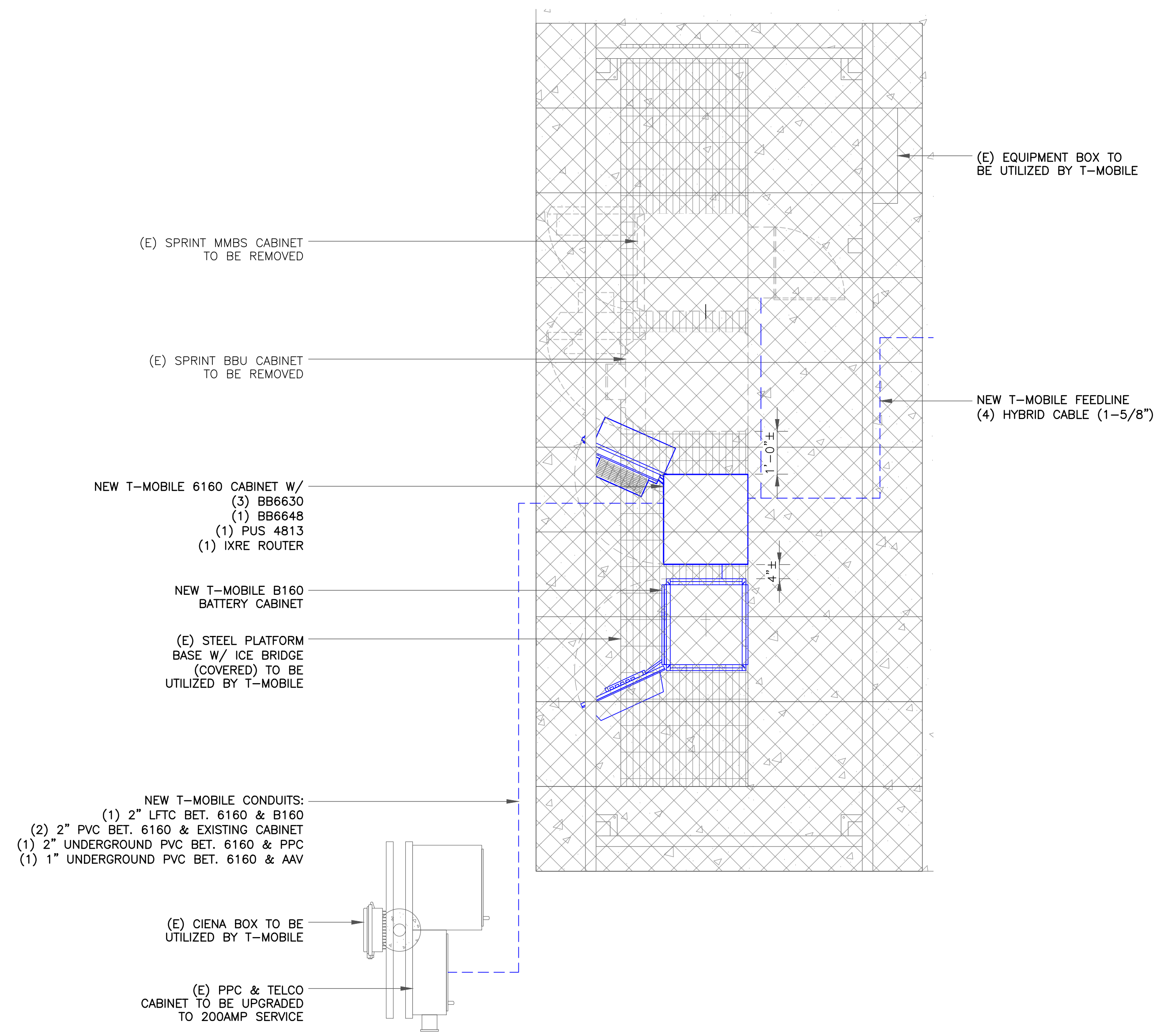
NOTE:
 1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.



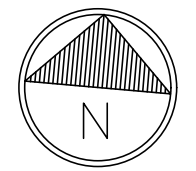
1 SITE PLAN
 SCALE: 3/16"=1'-0" (FULL SIZE)
 3/32"=1'-0" (11x17)



NOTES:
 THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
 SCALE: 3/4"=1'-0" (FULL SIZE)
 3/8"=1'-0" (11x17)



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T-MOBILE SITE NUMBER:
CTNH579A
 BU #: 876373
LONG EDDY / WRIGHT PROPERTY
 136 WRIGHT RD.
 TORRINGTON, CT 06790
 EXISTING 148'-0" MONOPOLE

ISSUED FOR:

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1	03/10/21	JDL	FINAL	SS

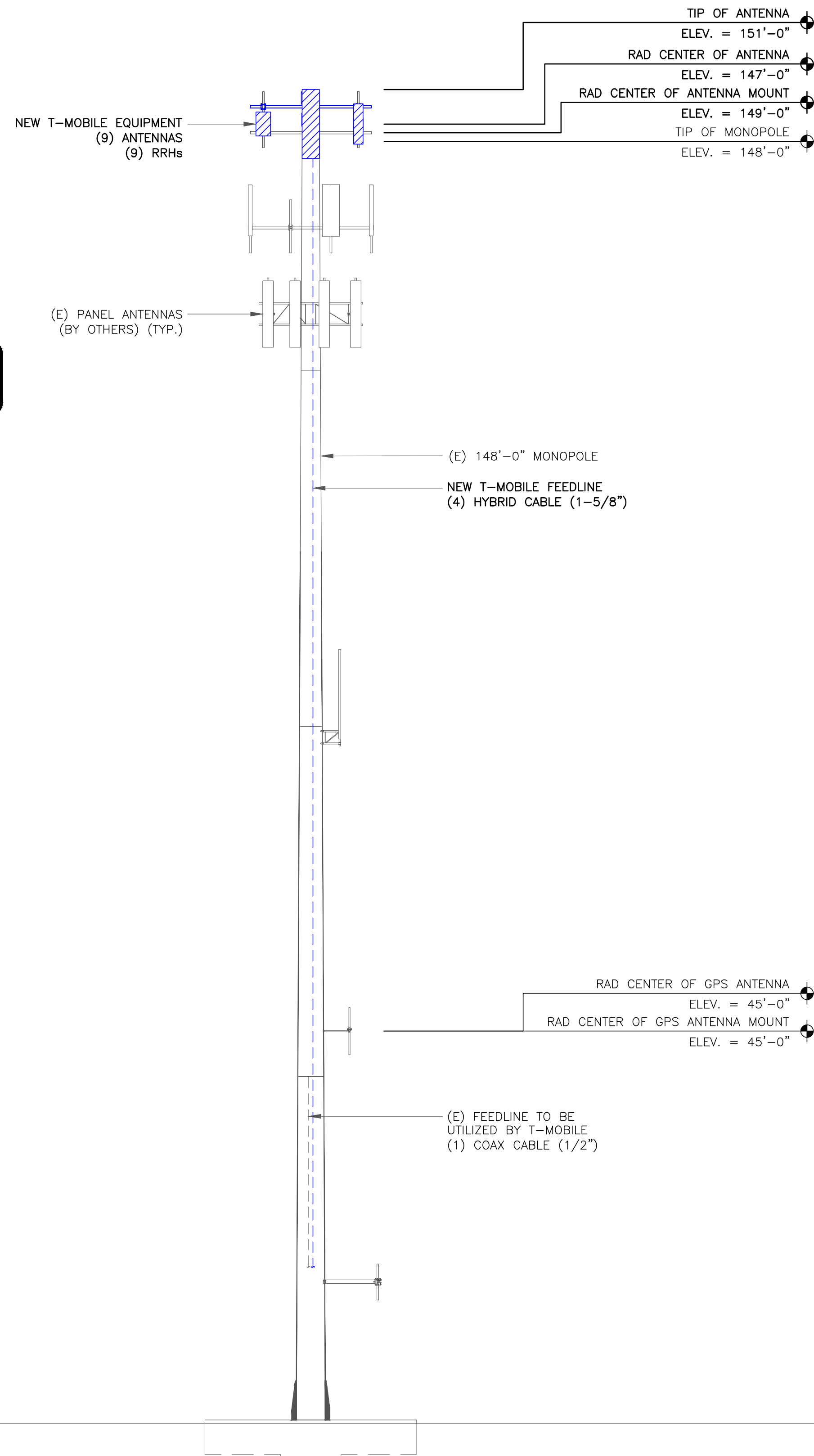
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 3/10/21

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SHEET NUMBER: **C-1**
 REVISION: **1**

NOTES:

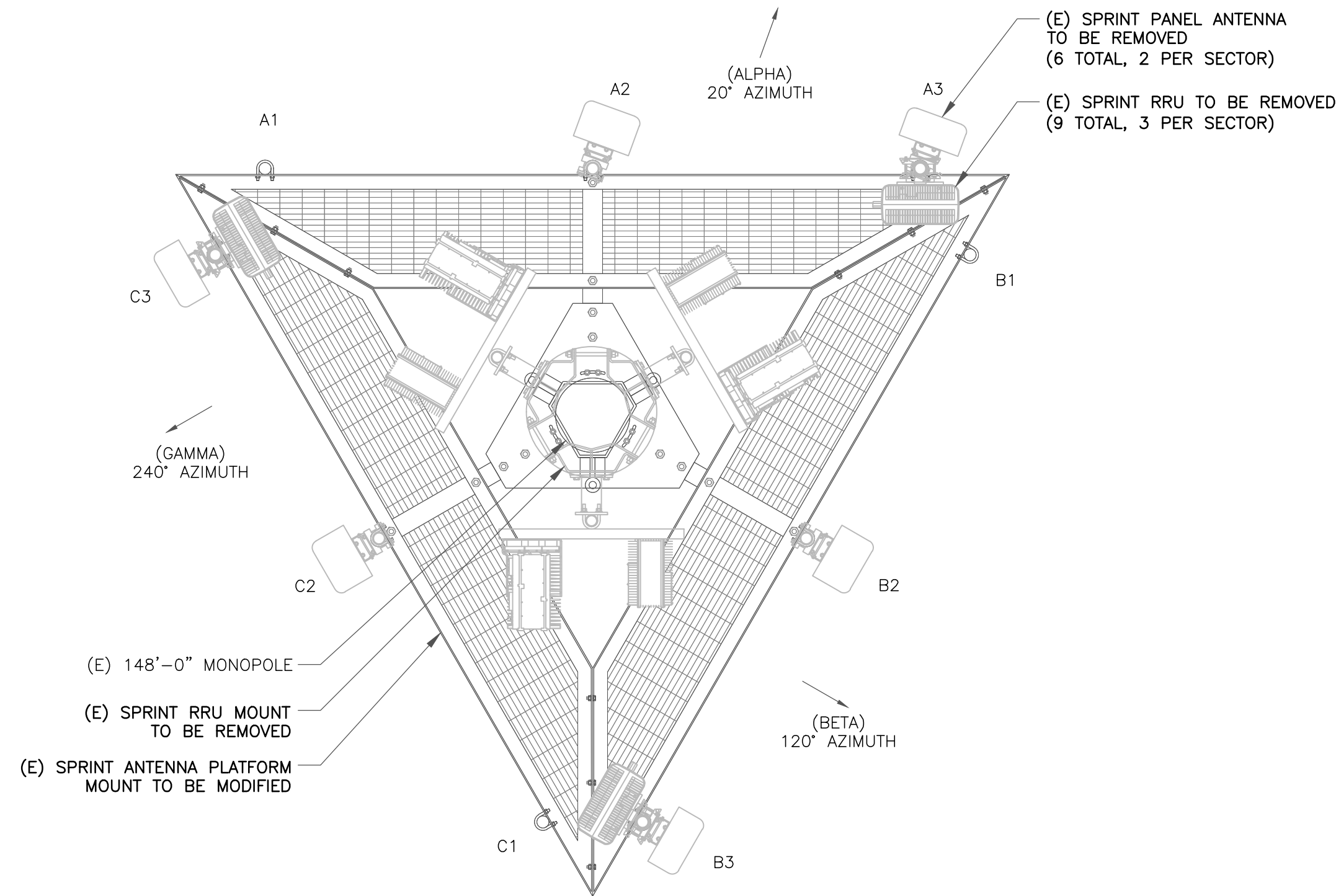
- ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
- INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



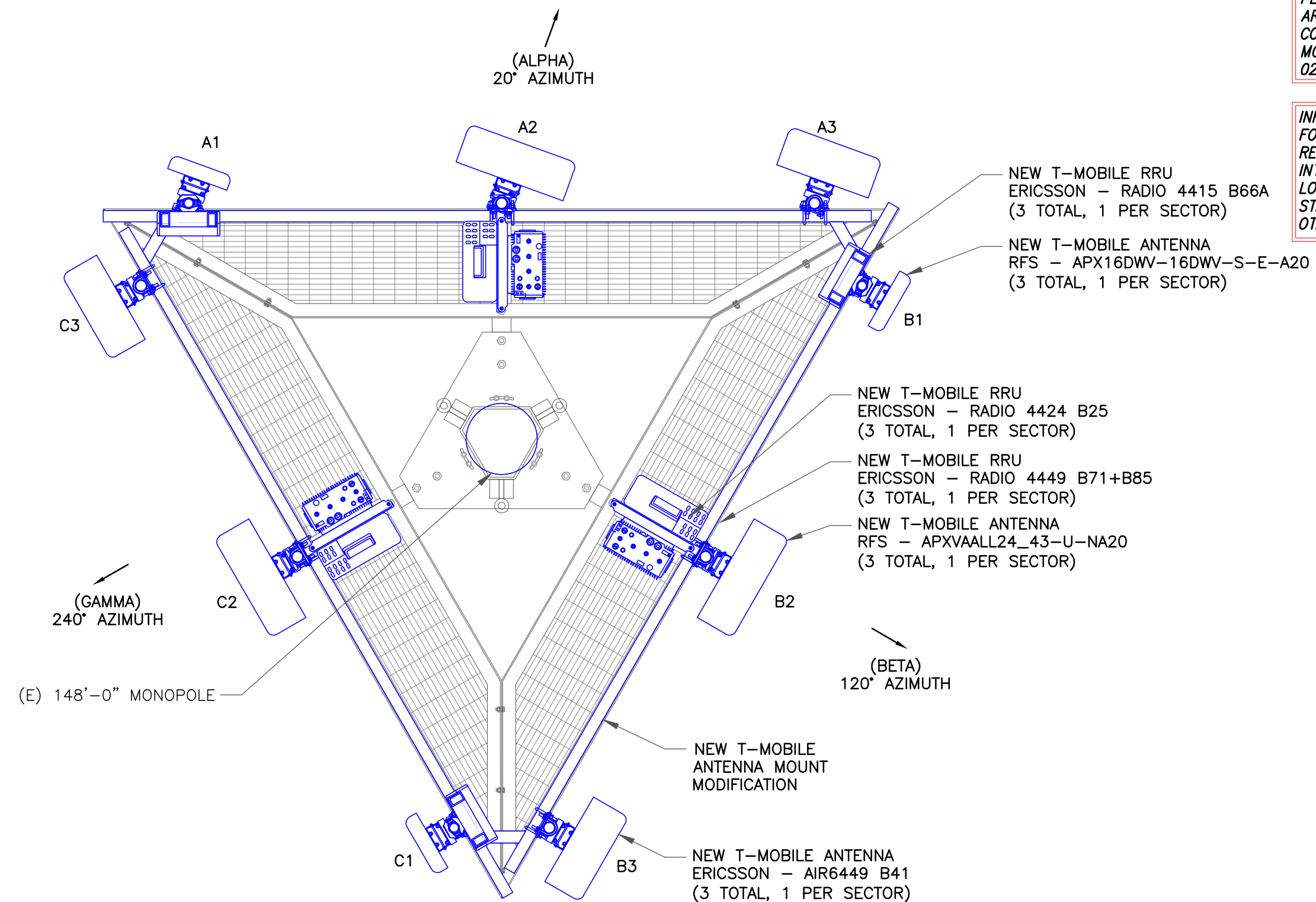
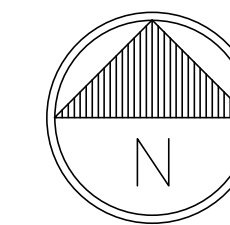
1 FINAL ELEVATION
SCALE: NOT TO SCALE

T-MOBILE EQUIPMENT
ANTENNA CL: 150'-0"
MOUNT CL: 149'-0"
ANTENNA CL: 45'-0"
MOUNT CL: 45'-0"

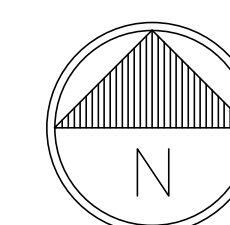
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE



NOTE:
A STRUCTURAL EVALUATION OF THE T-MOBILE ANTENNA MOUNTS HAS BEEN PERFORMED BY GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION. REFER TO ANTENNA MOUNT STRUCTURAL ANALYSIS DATED 02-01-2021 PRIOR TO CONSTRUCTION.

INFINIGY HAS NOT EVALUATED THE TOWER FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER. REFER TO STRUCTURAL ANALYSIS PERFORMED BY OTHERS PRIOR TO CONSTRUCTION.

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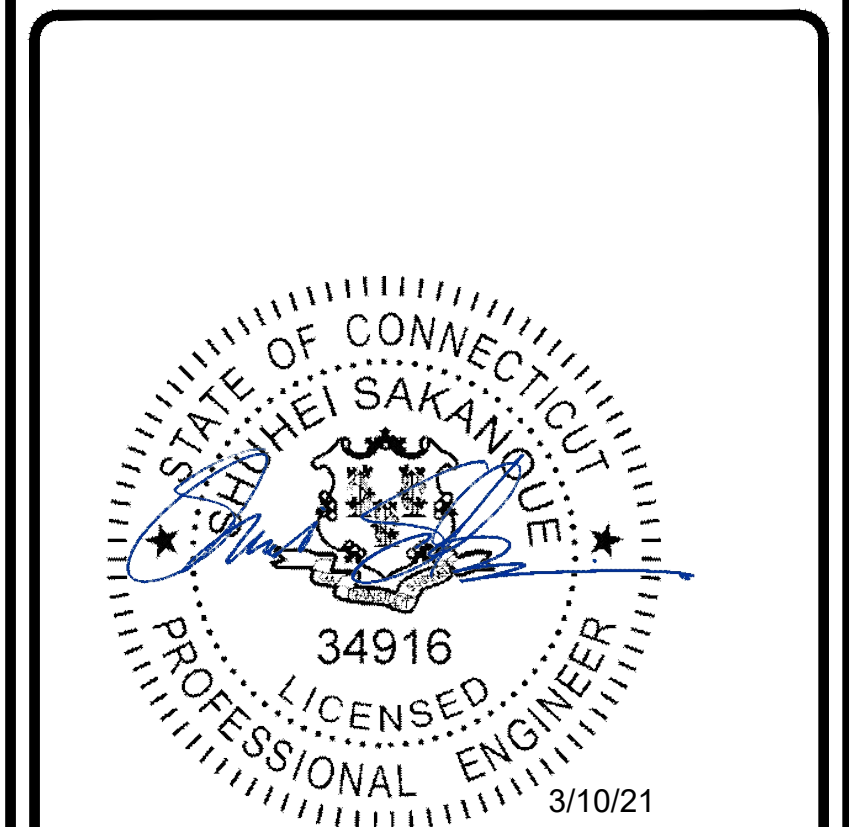
BU #: 876373
LONG EDDY / WRIGHT PROPERTY

136 WRIGHT RD.
TORRINGTON, CT 06790

EXISTING 148'-0" MONOPOLE

ISSUED FOR:

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0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS

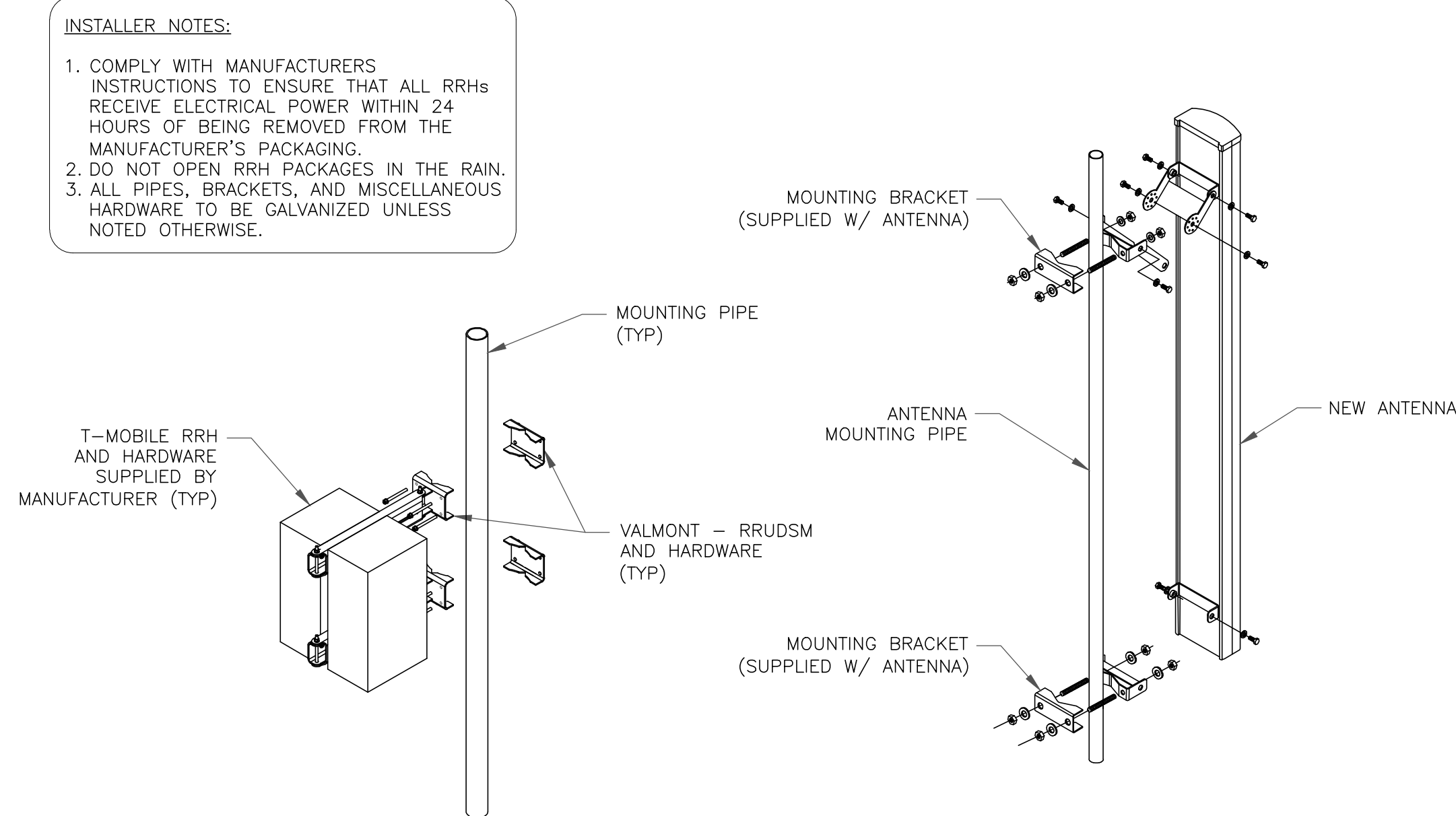


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SHEET NUMBER: **C-2** REVISION: **1**

ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L2100	150'-0"	20°	RFS	APX16DWV-16DWV-S-E-A20	0°	--	(1) ERICSSON - RRUS 4415 B66A	(1) 6X12 HCS HYBRID (SHARED)
ALPHA	A2	L700, L600, N600, L1900, G1900	150'-0"	20°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4415 B25	(1) 6X12 HCS HYBRID (SHARED)
ALPHA	A3	L2500, N2500	150'-0"	20°	ERICSSON	AIR6449 B41	0°	--	--	(1) 6X12 HCS HYBRID (SHARED)
BETA	B1	L2100	150'-0"	120°	RFS	APX16DWV-16DWV-S-E-A20	0°	--	(1) ERICSSON - RRUS 4415 B66A	(1) 6X12 HCS HYBRID (SHARED)
BETA	B2	L700, L600, N600, L1900, G1900	150'-0"	120°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4424 B25	(1) 6X12 HCS HYBRID (SHARED)
BETA	B3	L2500, N2500	150'-0"	120°	ERICSSON	AIR6449 B41	0°	--	--	(1) 6X12 HCS HYBRID (SHARED)
GAMMA	C1	L2100	150'-0"	240°	RFS	APX16DWV-16DWV-S-E-A20	0°	--	(1) ERICSSON - RRUS 4415 B66A	(1) 6X12 HCS HYBRID (SHARED)
GAMMA	C2	L700, L600, N600, L1900, G1900	150'-0"	240°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4415 B25	(1) 6X12 HCS HYBRID (SHARED)
GAMMA	C3	L2500, N2500	150'-0"	240°	ERICSSON	AIR6449 B41	0°	--	--	(1) 6X12 HCS HYBRID (SHARED)

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



2 ANTENNA WITH RRHS MOUNTING DETAIL
SCALE: NOT TO SCALE

NOTE:
1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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EXISTING 148'-0" MONOPOLE

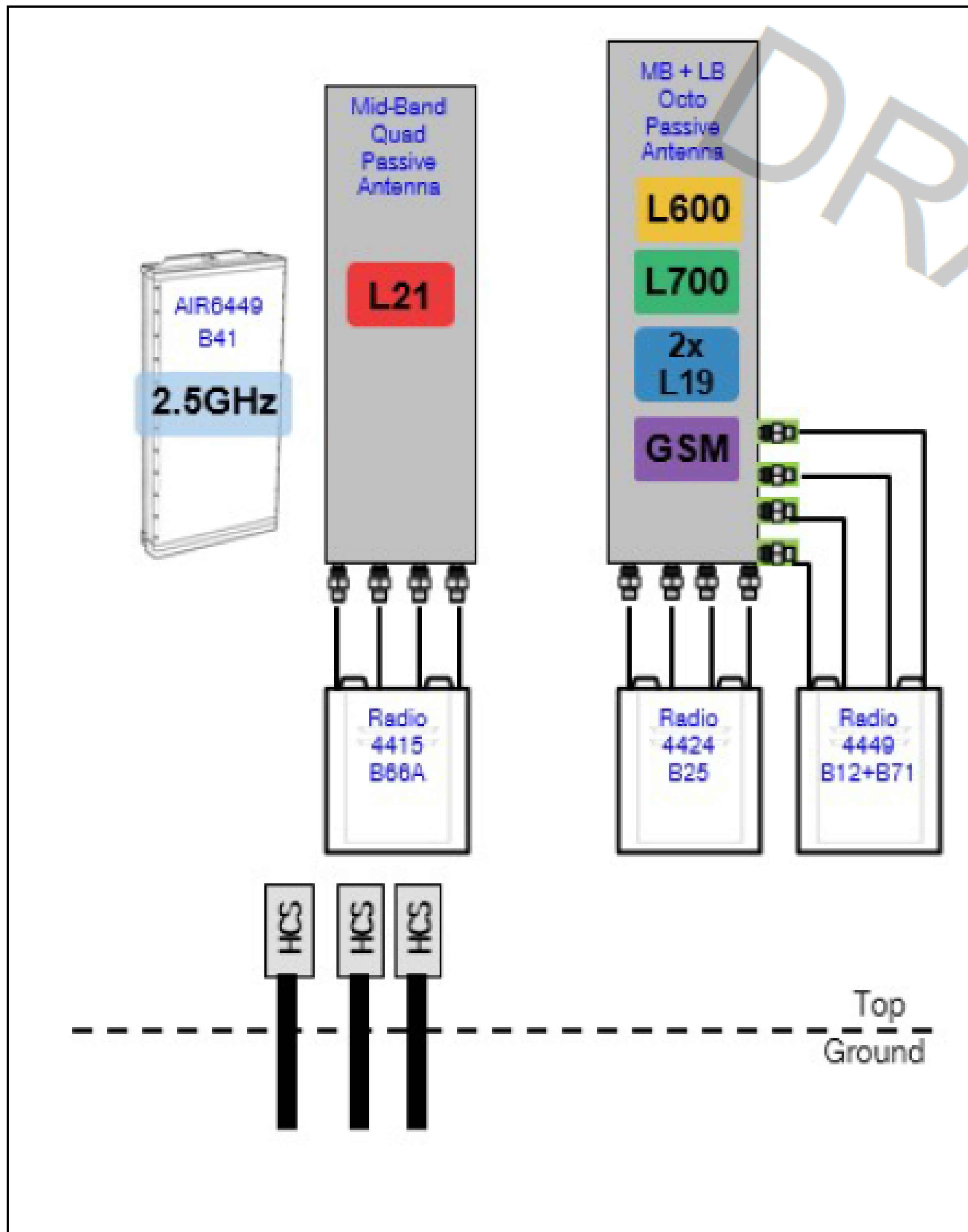
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STATE OF CONNECTICUT
SHUPEI SAKAMOTO
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SHEET NUMBER: **C-3** REVISION: **1**



Notes:

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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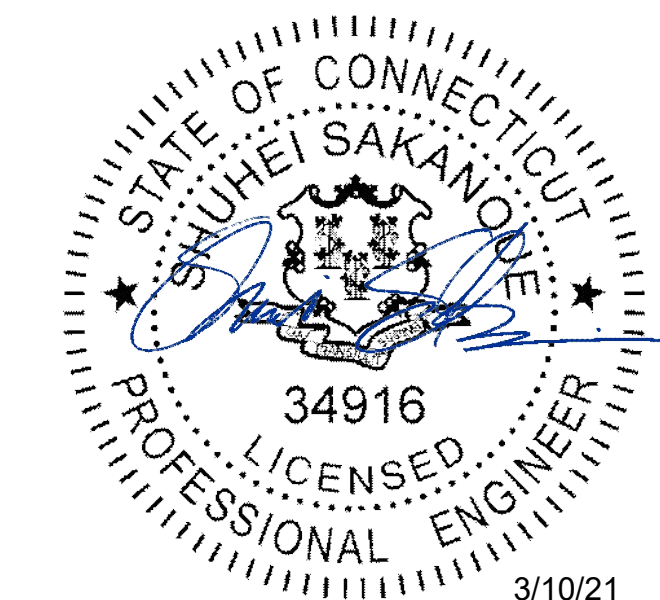
BU #: 876373
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PROPERTY

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EXISTING 148'-0" MONOPOLE

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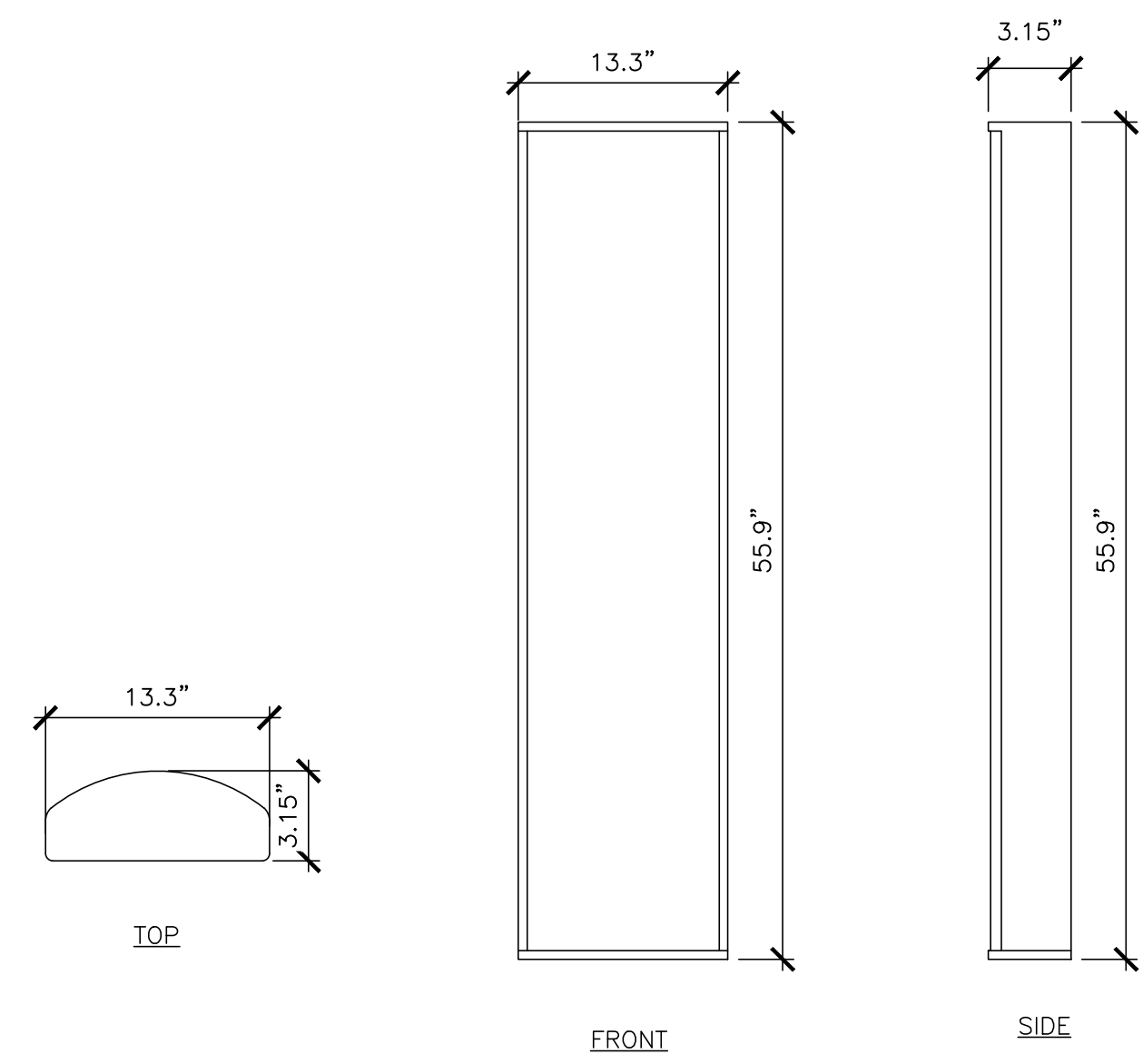
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C-4

REVISION:

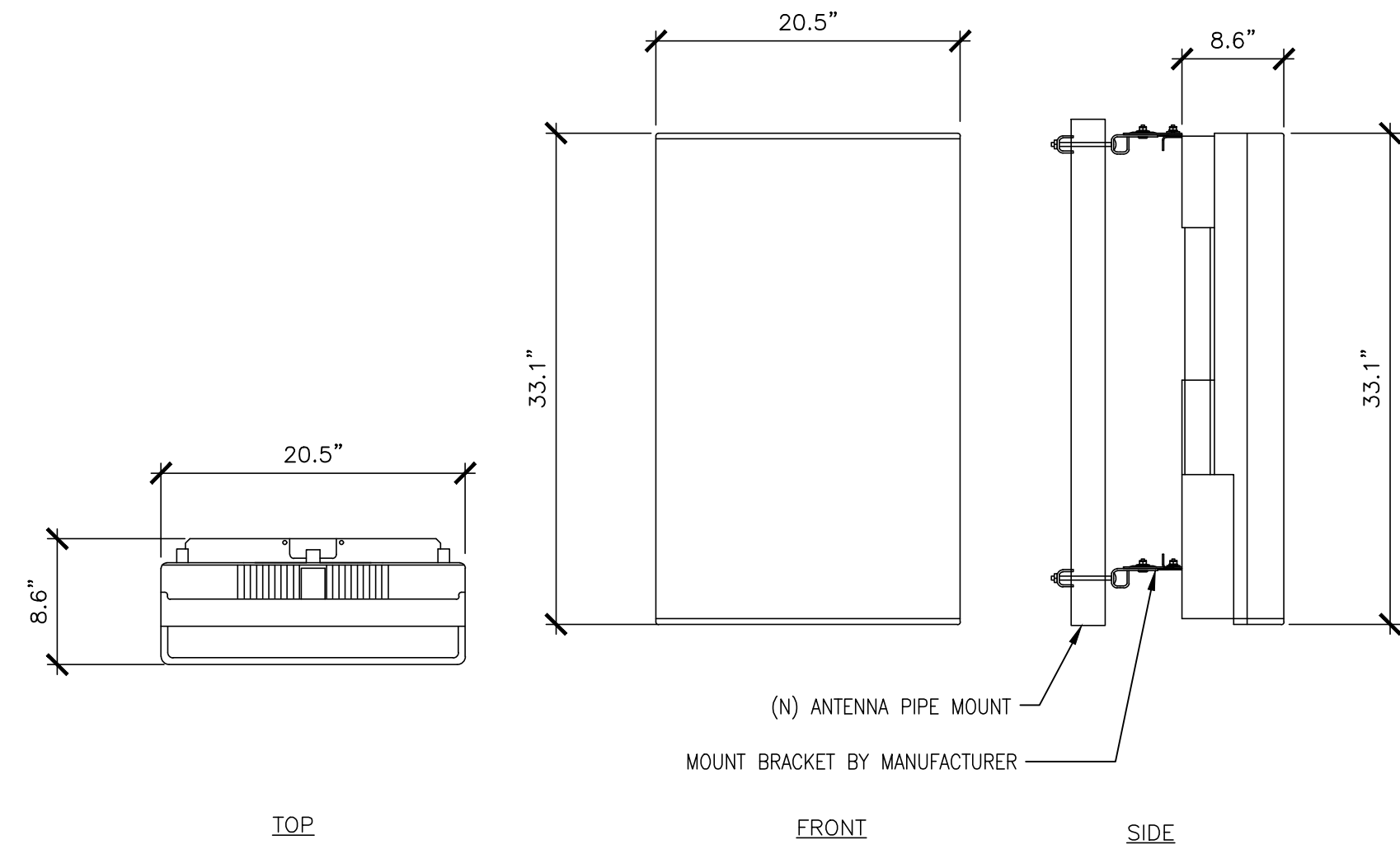
1

MANUFACTURER: RFS
 MODEL: APX16DW-16DW-S-E-A20
 WEIGHT: 40.7 LBS
 DIMENSIONS: 55.9"H. X 13.3"W. X 3.15"D.
 FREQUENCY: REFER TO RF DATA SHEET



② (N) APX16DW-16DW-S-E-A20 ANTENNA SPEC
 SCALE: NOT TO SCALE

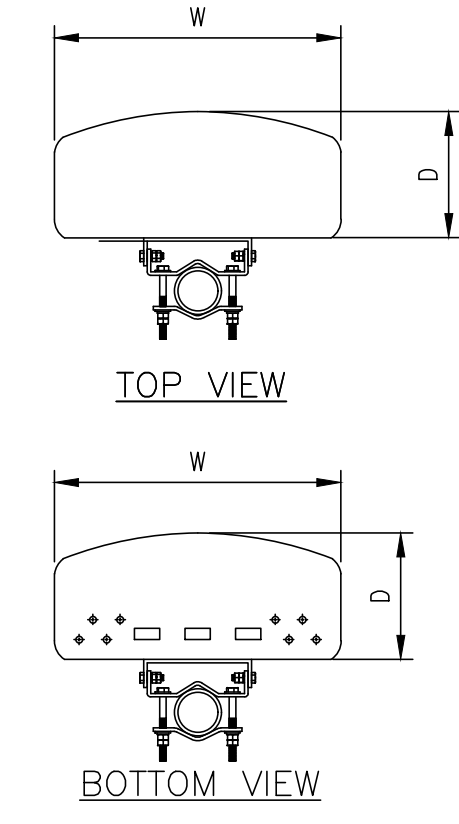
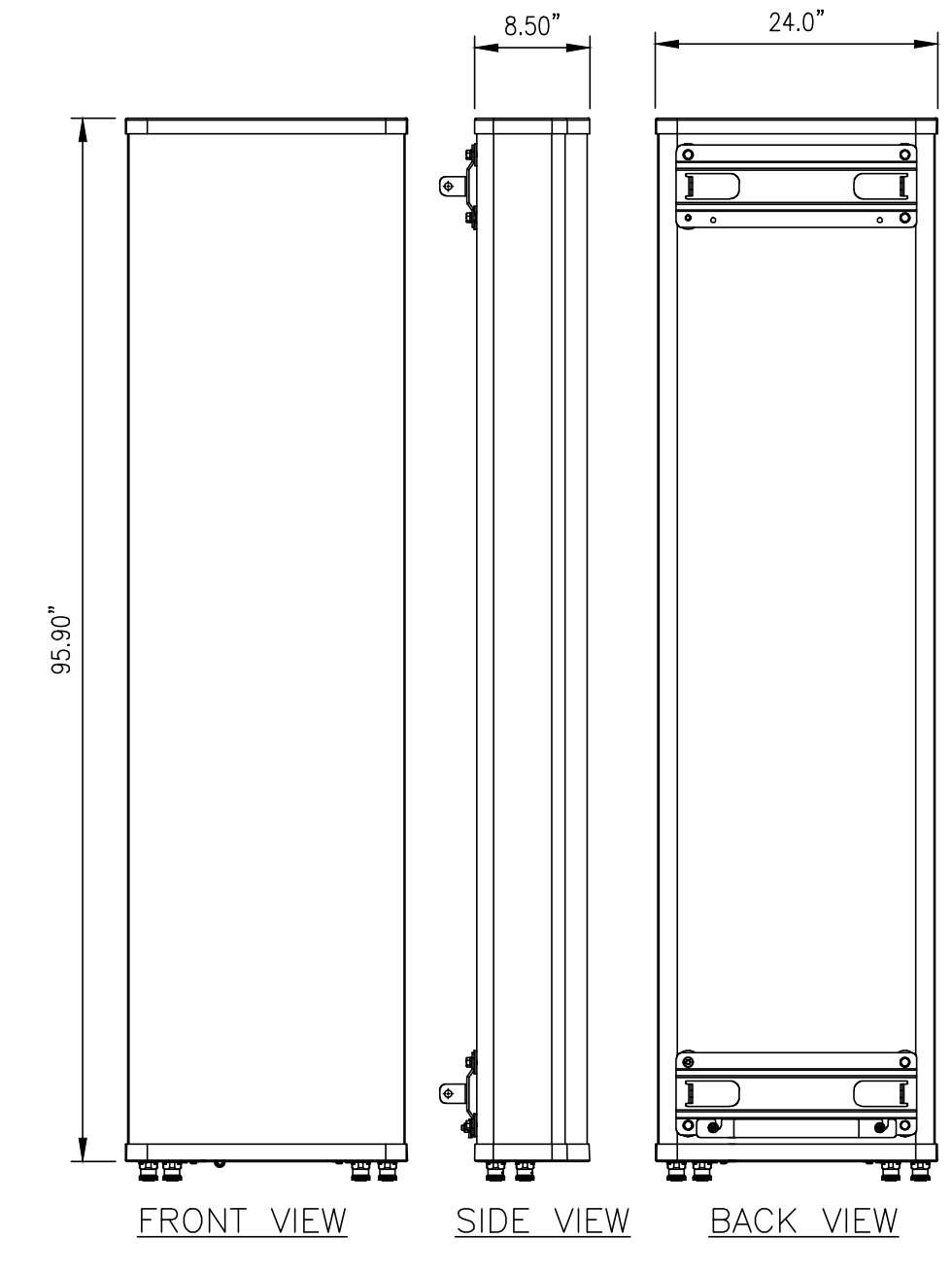
MANUFACTURER: ERICSSON
 MODEL: AIR6449 B41
 WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
 DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
 FREQUENCY: REFER TO RF DATA SHEET



① (N) AIR6449 B41 ANTENNA SPEC
 SCALE: NOT TO SCALE

700MHz RFS ANTENNAS

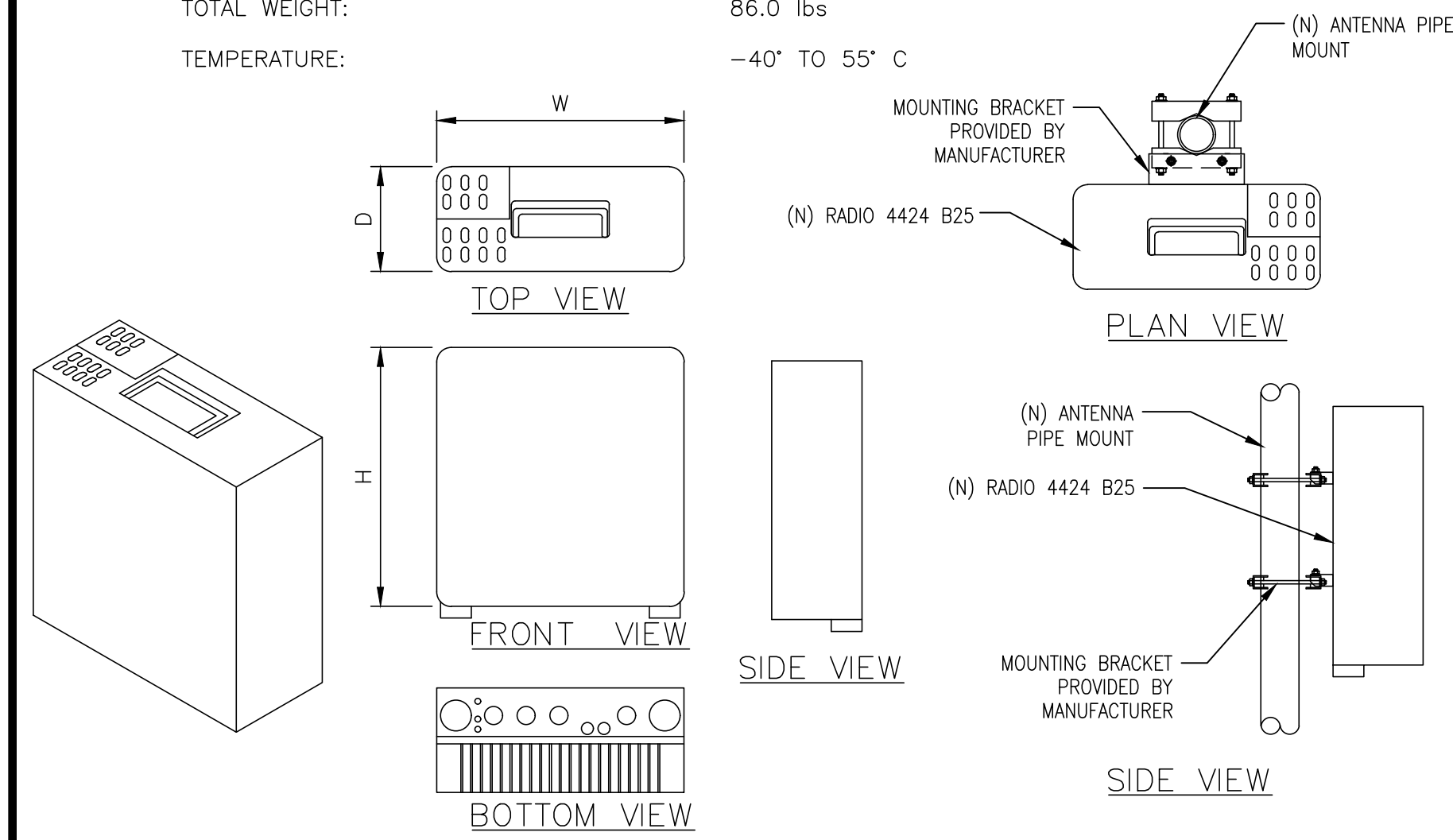
MODEL	WEIGHT (lb)
(8') APXVAALL24_43-UNA20	149.90
WEIGHT W/ MOUNTING BRACKET (lb):	154



③ (N) APXVAALL24_43-UNA20 ANTENNA SPEC
 SCALE: NOT TO SCALE

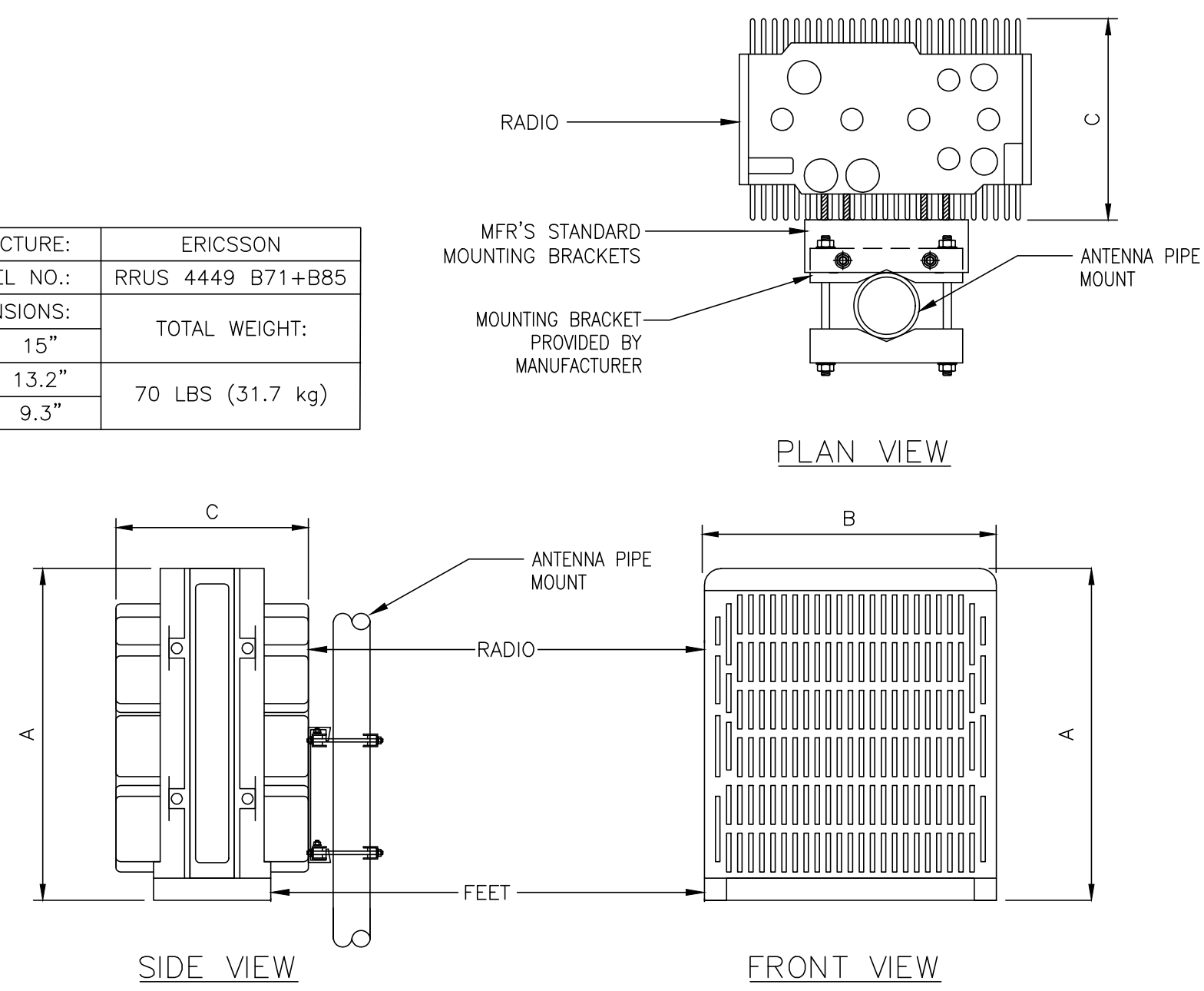
ERICSSON RADIO-4424 B25

DIMENSIONS, WxDxH: 17.10"x14.40"x11.30"
 MAX OUTPUT POWER: 4x80W (2x(2x80W))
 TOTAL WEIGHT: 86.0 lbs
 TEMPERATURE: -40° TO 55° C



④ (N) RADIO 4424 B25 SPEC
 SCALE: NOT TO SCALE

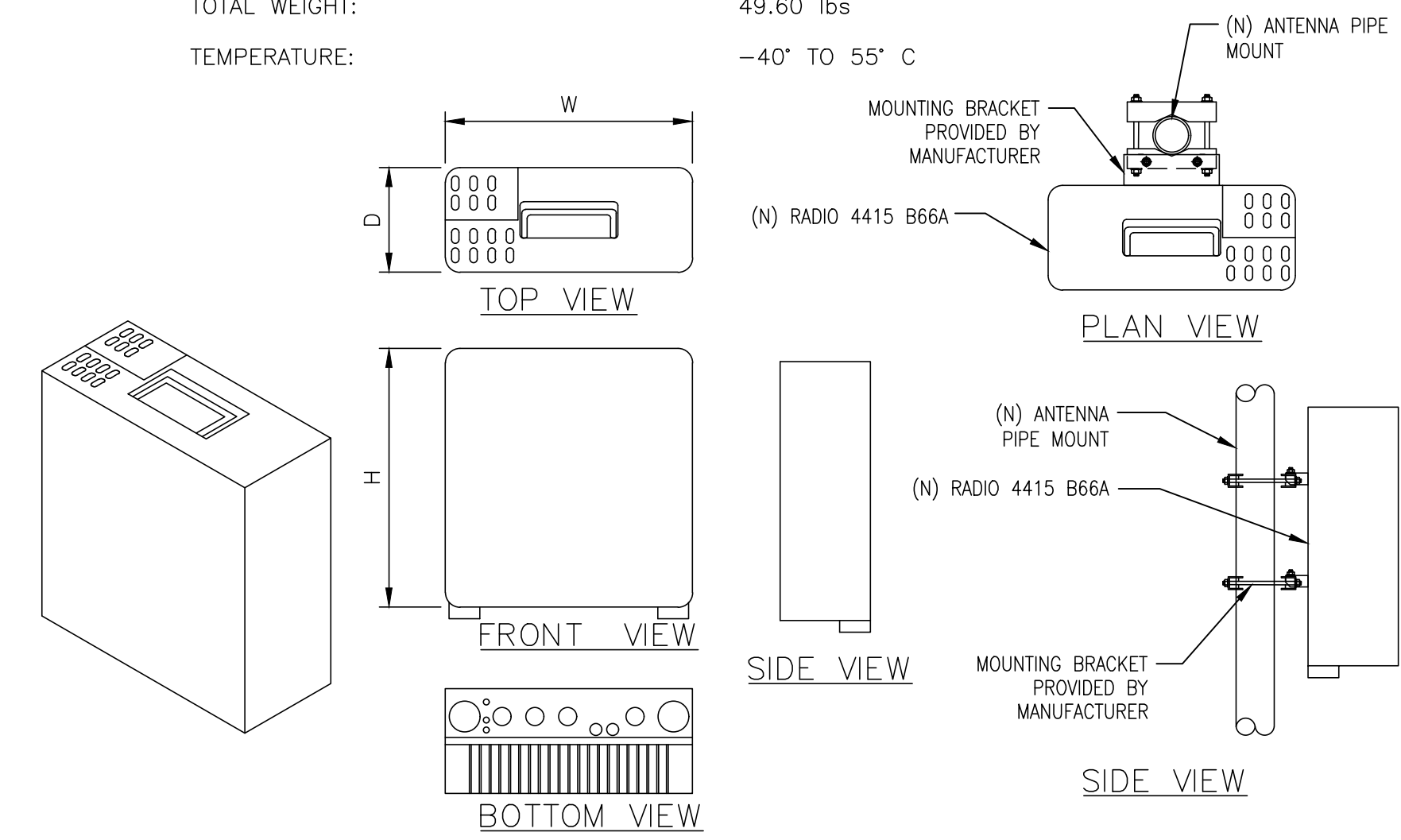
MANUFACTURE:		ERICSSON	
MODEL NO.:		RRUS 4449 B71+B85	
DIMENSIONS:		TOTAL WEIGHT:	
A	15"	70 LBS (31.7 kg)	
B	13.2"		
C	9.3"		



⑤ (N) RADIO 4449 B71+B85 SPEC
 SCALE: NOT TO SCALE

ERICSSON RADIO-4415 B66A

DIMENSIONS, WxDxH: 16.50"x13.50"x6.30"
 POWER CONSUMPTION: 660 WATTS
 TOTAL WEIGHT: 49.60 lbs
 TEMPERATURE: -40° TO 55° C



⑥ (N) RADIO 4415 B66A SPEC
 SCALE: NOT TO SCALE

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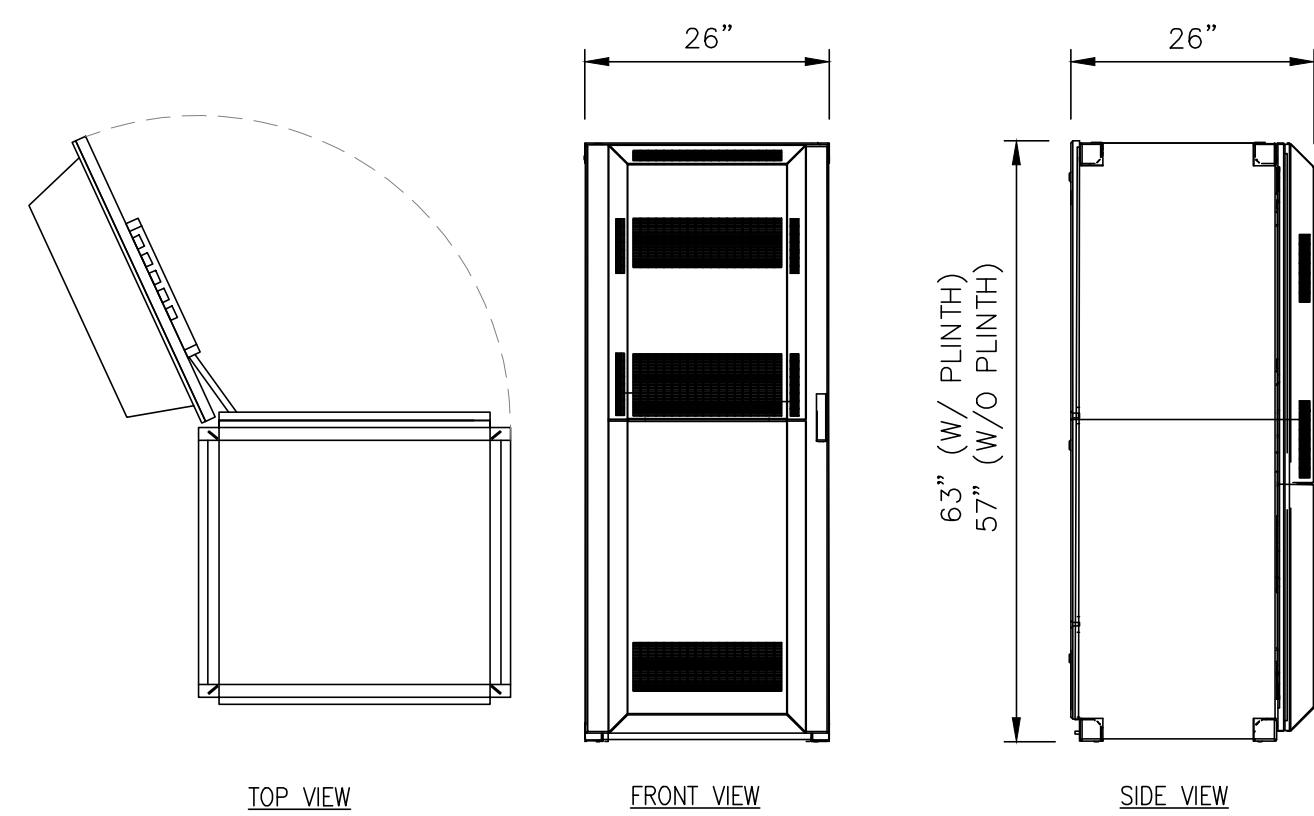
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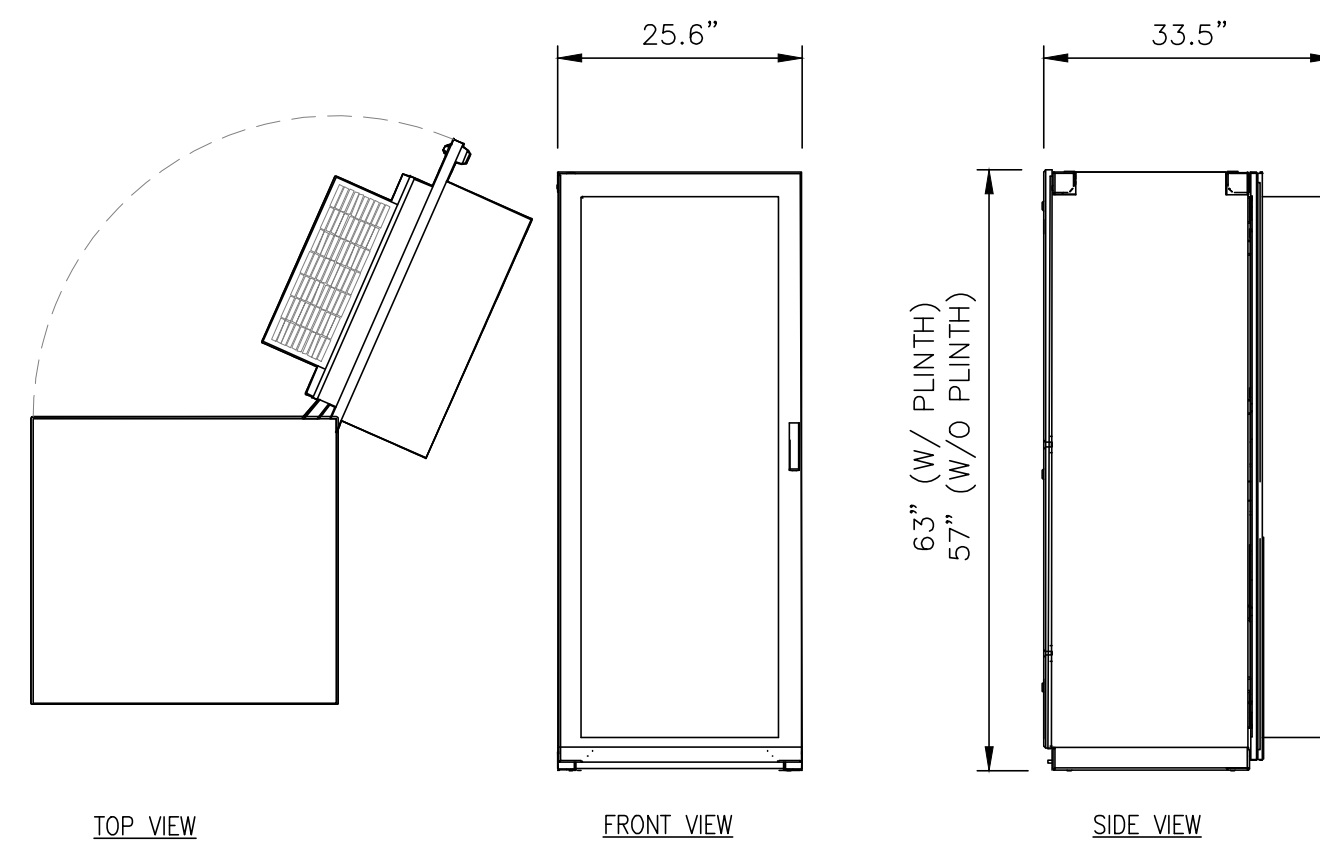
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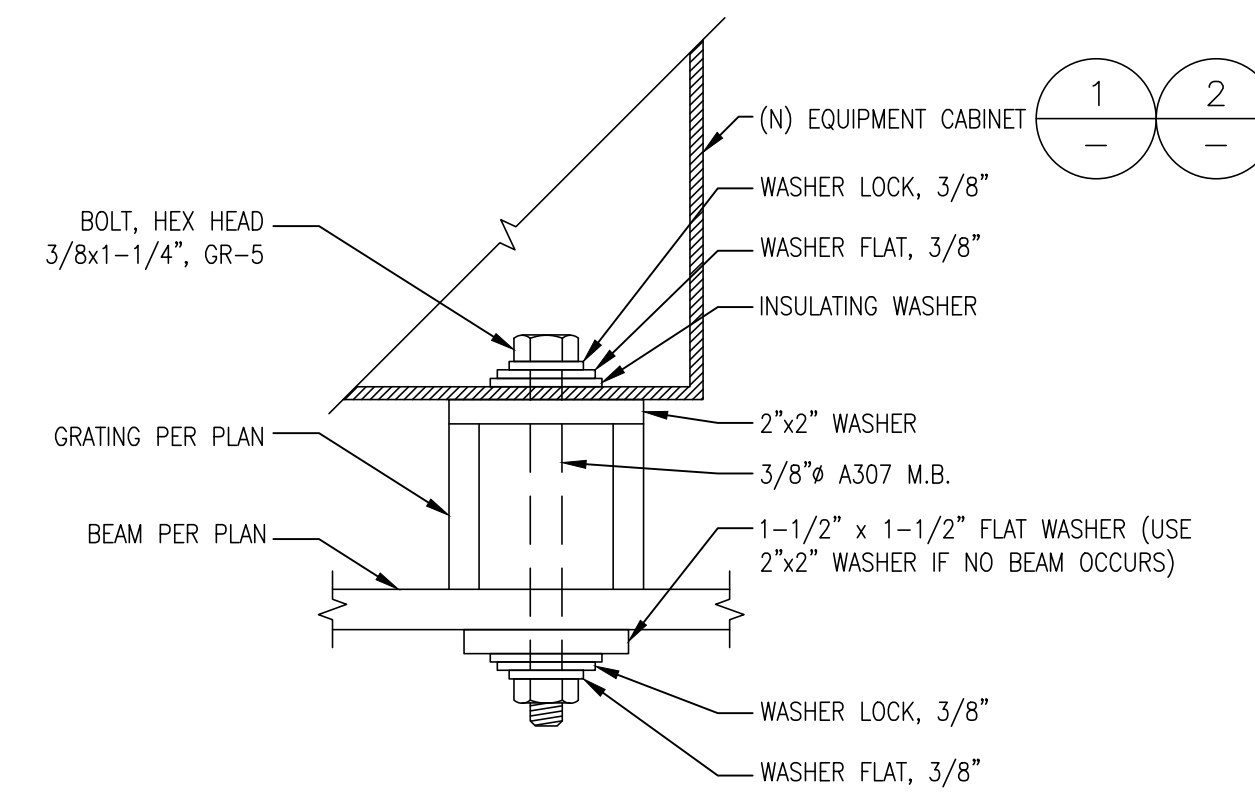
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

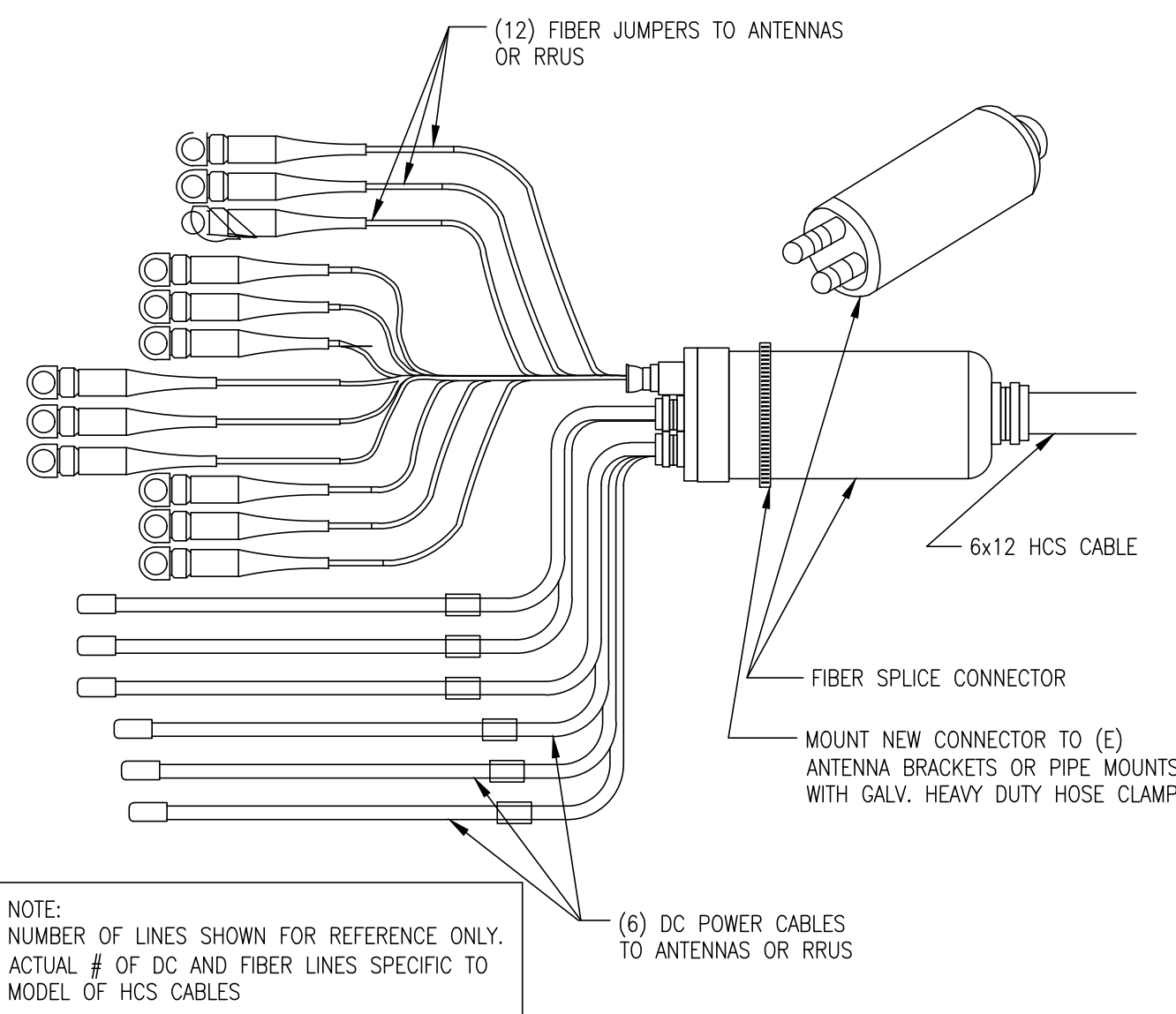


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE

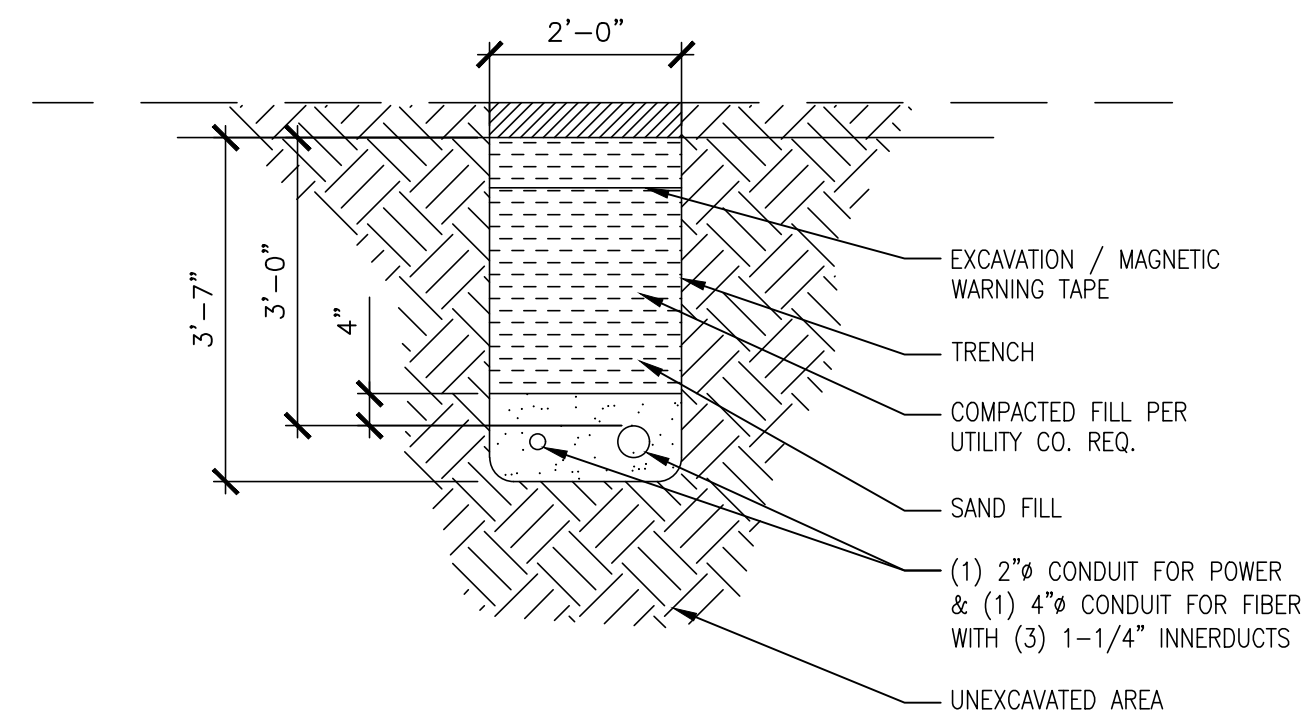


3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



NOTE:
NUMBER OF LINES SHOWN FOR REFERENCE ONLY.
ACTUAL # OF DC AND FIBER LINES SPECIFIC TO
MODEL OF HCS CABLES

4 (N) 6X12 HCS CABLE DETAIL
SCALE: NOT TO SCALE



5 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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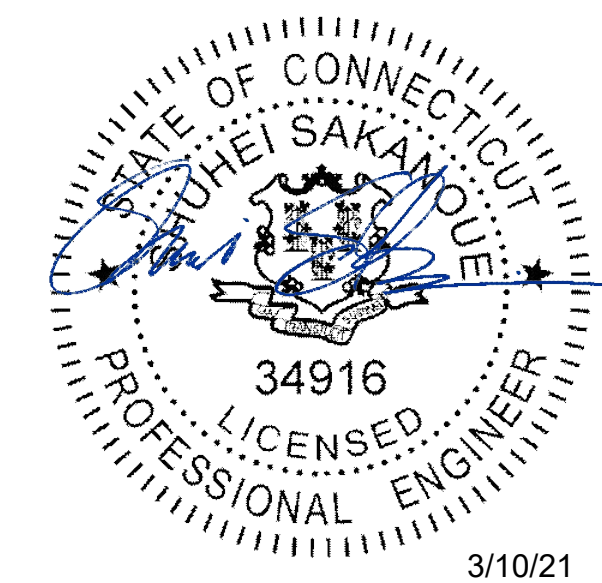
T-MOBILE SITE NUMBER:
CTNH579A

BU #: 876373
**LONG EDDY / WRIGHT
PROPERTY**

136 WRIGHT RD.
TORRINGTON, CT 06790

EXISTING 148'-0" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES/QA
A	02/17/21	RCD	PRELIMINARY	SS
0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS



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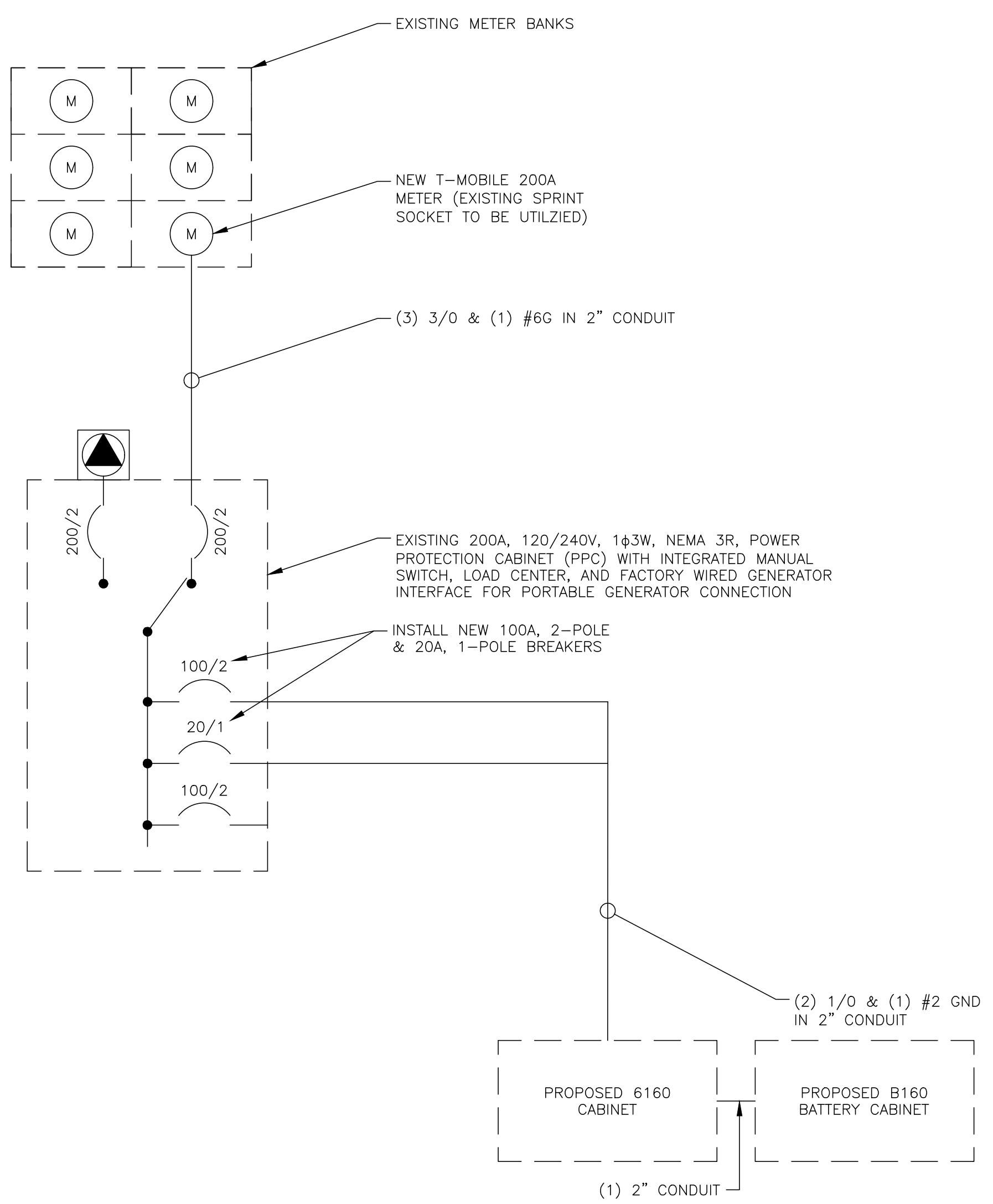
SHEET NUMBER: **C-6** REVISION: **1**

T-MOBILE PANEL SCHEDULE											
MAIN: 200A MAIN BREAKER				VOTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE				SHORT CIRCUIT CURRENT RATING: --			
MOUNTING: INSIDE PPC ENCLOSURE				ENCLOSURE: NEMA 3R				SURGE PROTECTION DEVICE: YES			
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A	B					
BTS 1	1800	C	100	1	1800		2	0	NC	60	AC SURGE PROTECTION
	1800	C		3		1800	4	0	NC		
6160 GFI**	180	NC	20	5	7180		6	100	C	7000	6160**
BLANK				7		7000	8		C	7000	
LIGHT	200	NC	15	9	380		10	15	NC	180	TELCO GFI
FAN (OFF POSITION)	0	NC	10	11		0	12				BLANK
BASE LOAD (VA) =					9360	8800					
25% OF CONTINUOUS LOAD (VA) =					2200	2200					
TOTAL LOAD (VA) =					11560	11000					
TOTAL LOAD (A) =					96.3	91.6					
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD * REMOVE WIRE TO EXISTING BREAKER AND MARK AS SPARE **INDICATES NEW LOAD. ALL OTHER LOADS ARE EXISTING. NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED											

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKANQUE
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SHEET NUMBER: E-1	REVISION: 1
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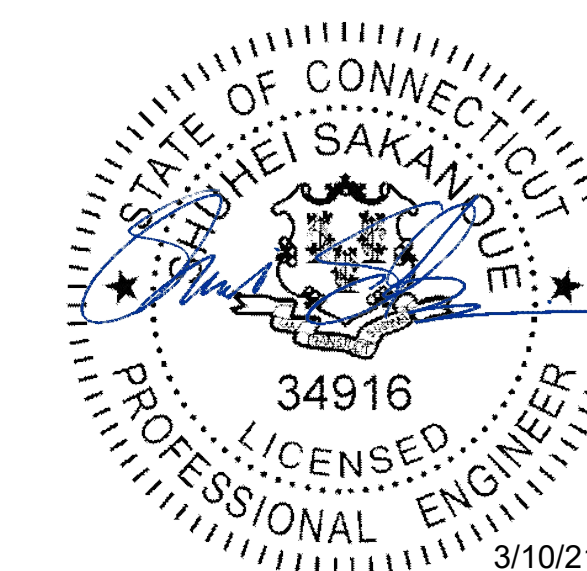
BU #: **876373**
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PROPERTY

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TORRINGTON, CT 06790

EXISTING 148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	02/17/21	RCD	PRELIMINARY	SS
0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS

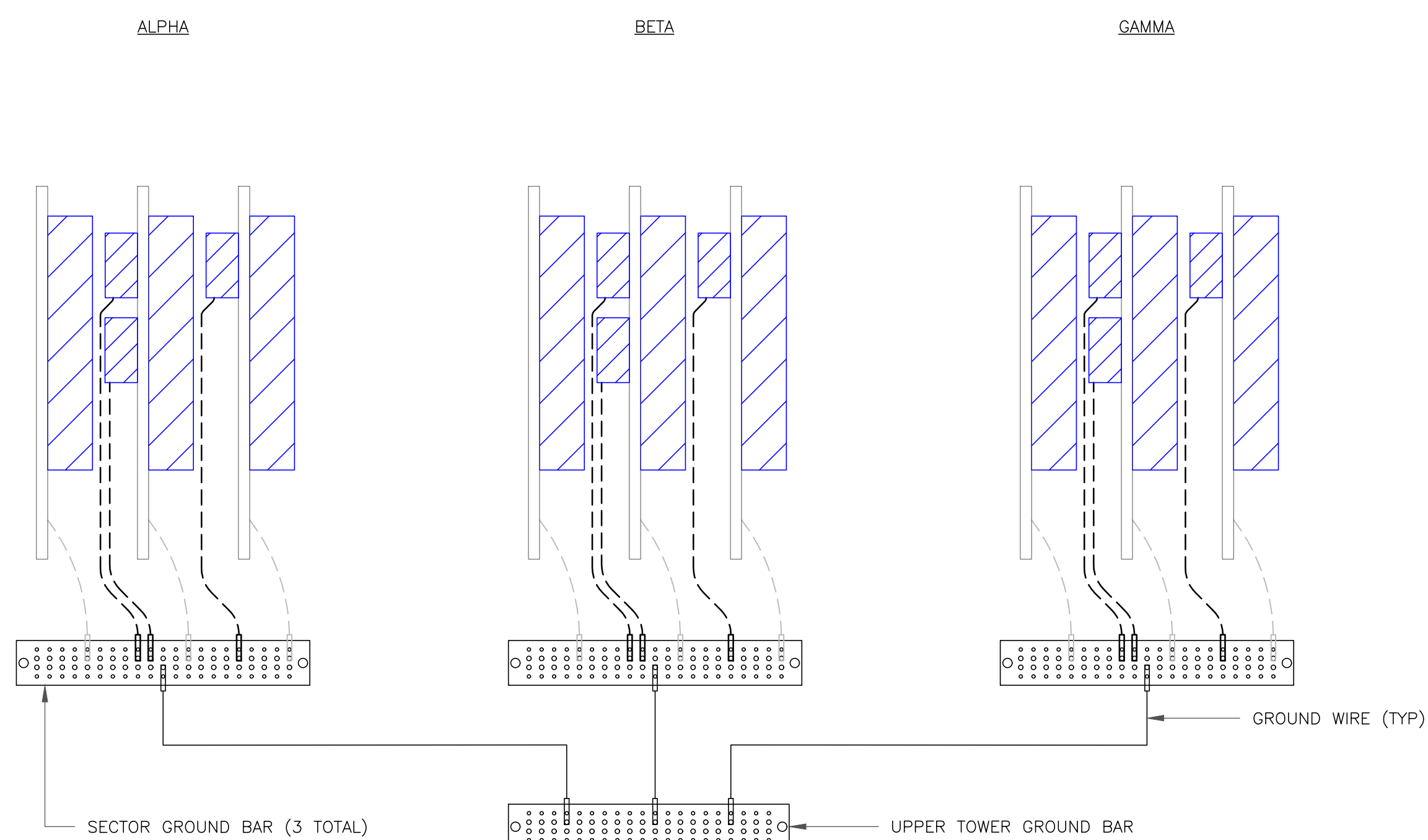


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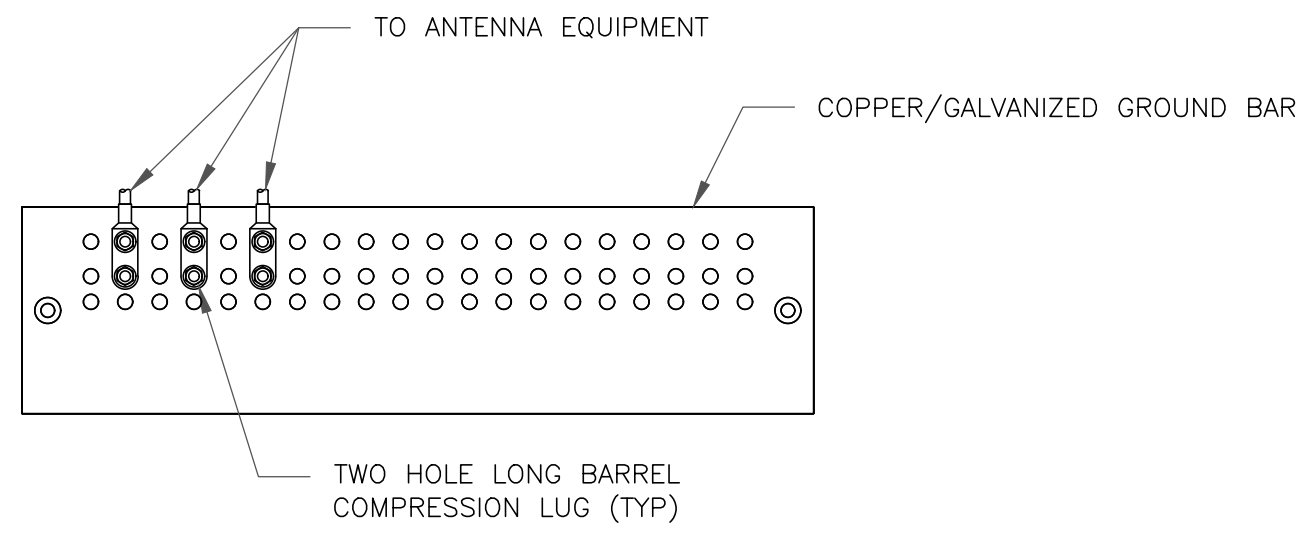
G-1

1



NOTE:
ALL NEW GROUNDS TO BE #6 STRANDED
COPPER WITH GREEN INSULATION UNLESS
NOTED OTHERWISE.

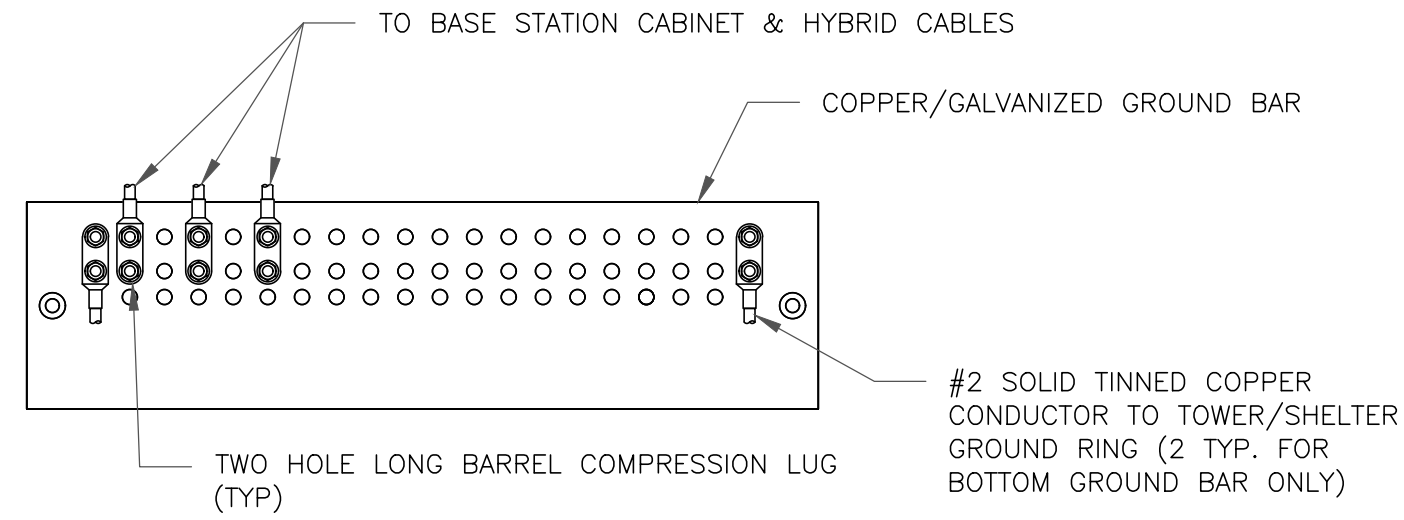
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

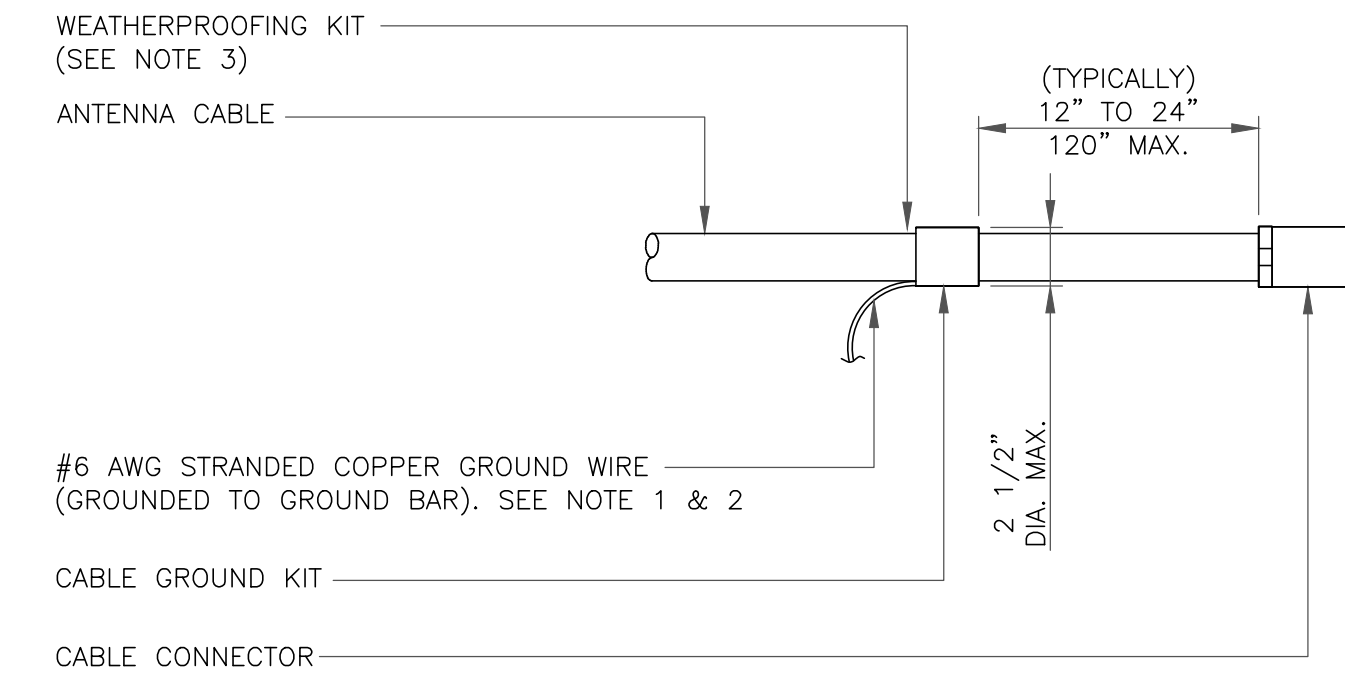
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

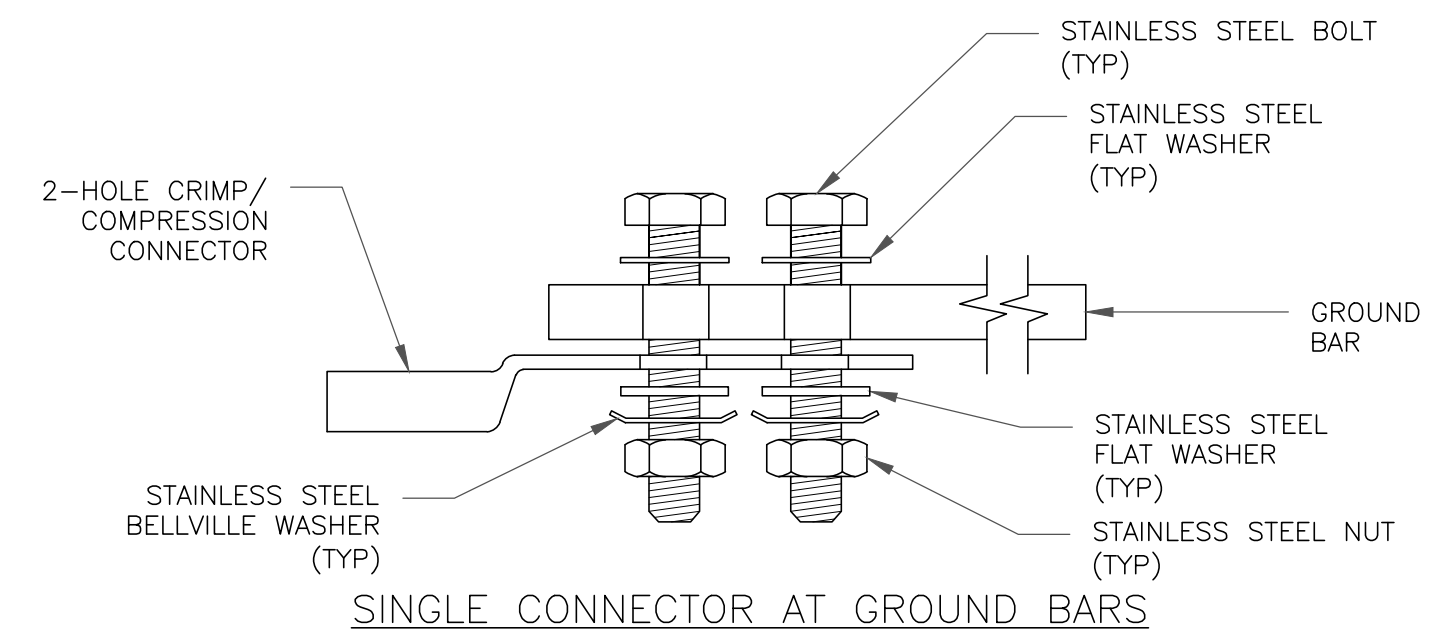
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



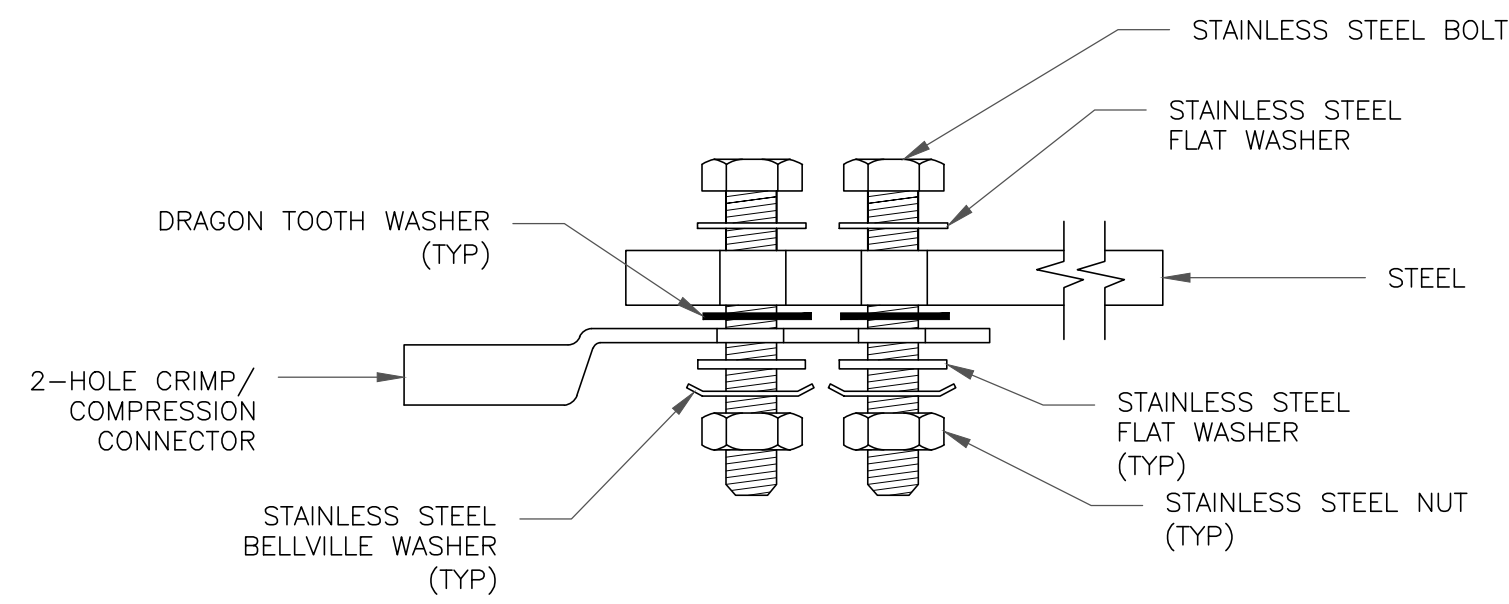
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

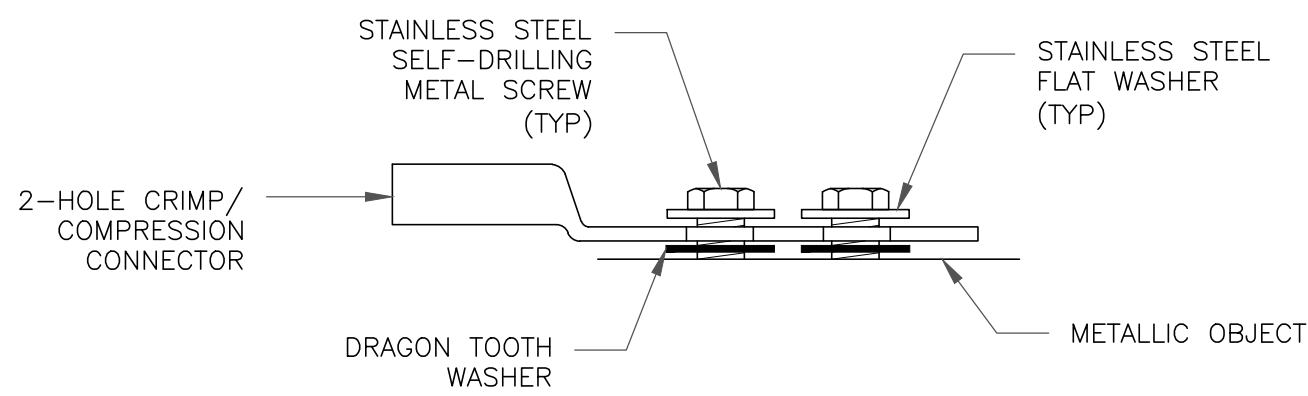
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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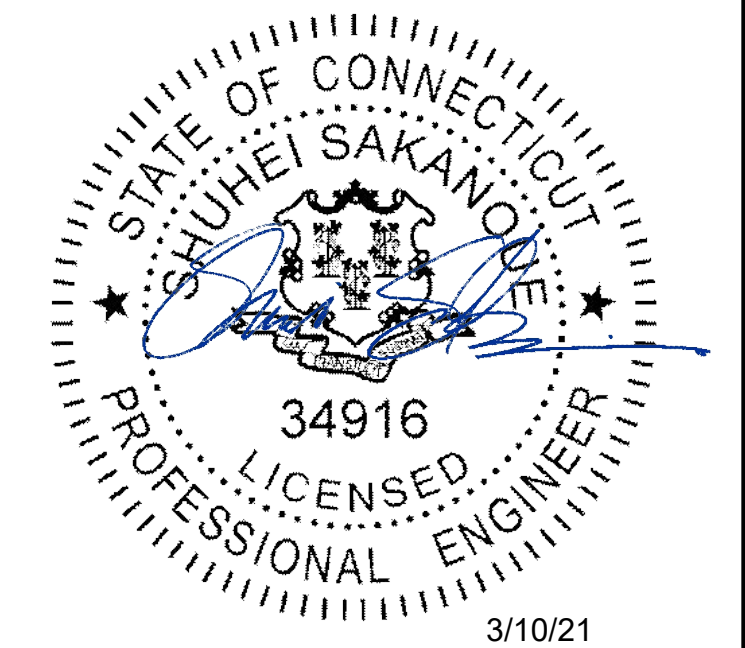
BU #: 876373
LONG EDDY / WRIGHT PROPERTY

136 WRIGHT RD.
TORRINGTON, CT 06790

EXISTING 148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
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0	02/25/21	BMM	FINAL	SS
1	03/10/21	JDL	FINAL	SS



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SHEET NUMBER: **G-2** REVISION: **1**

Exhibit D

Structural Analysis Report

Date: **February 17, 2021**



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject: **Structural Analysis Report**

Carrier Designation: **Sprint PCS Co-Locate**
Site Number: CTNH579A
Site Name: CTNH579A

Crown Castle Designation: **BU Number:** 876373
Site Name: Long Eddy / Wright Property
JDE Job Number: 628852
Work Order Number: 1919046
Order Number: 538775 Rev. 1

Engineering Firm Designation: **B+T Group Project Number:** 89028.018.01

Site Data: **136 Wright Rd., Torrington, Litchfield County, CT**
Latitude 41° 49' 38.34", Longitude -73° 10' 13.97"
148 Foot - Monopole Tower

B+T Group is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

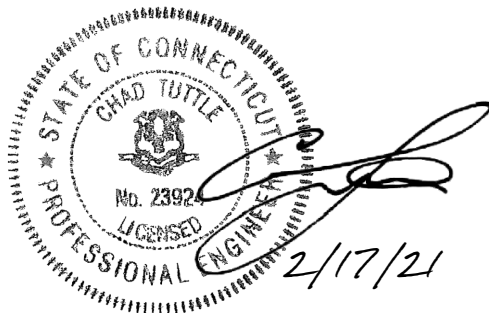
LC7: Proposed Equipment Configuration

Sufficient Capacity – 80.2%

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: John Landon

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 2/10/2021



Chad E. Tuttle, P.E.

tnxTower Report - version 8.0.7.5

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 – Tower Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This is a 148 ft. Monopole tower designed by Summit in June of 2000.

The tower has been modified per reinforcement drawings prepared by B+T Group, in February of 2014. Reinforcement consists of shaft modification between elevation 0.5' and 100.5', addition of new transition stiffeners, anchor rods and anchor rod brackets.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	150.0	3	Ericsson	AIR6449 B41_T-MOBILE	4	1-5/8
		3	Ericsson	RADIO 4415 B66A		
		3	Ericsson	RADIO 4424 B25_TMO		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	RFS Celwave	APX16DWV-16DWV-S-E-A20		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		
	148.0	1	Site Pro 1	HRK14-U Handrail Kit		
		1	--	Platform Mount [LP 1201-1]		
45.0	45.0	1	GPS	GPS_A	1	1/2
		1	--	Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
149.0	150.0	3	Alcatel Lucent	1900MHZ RRH (65MHZ)	--	--
		3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER		
		3	Alcatel Lucent	800MHZ RRH		
	149.0	1	--	Pipe Mount [PM 601-3]		
138.0	140.0	2	Antel	LPA-80063/6CF	7	1-5/8
		4	Antel	LPA-80080/6CF		
		6	Quintel Tech.	QS6656-5		
		1	RFS Celwave	DB-C1-12C-24AB-0Z		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	138.0	3	Samsung Telecomm.	RFV01U-D1A		
		3	Samsung Telecomm.	RFV01U-D2A		
		1	--	Platform Mount [LP 1201-1]		
128.0	128.0	3	CCI Antennas	DMP65R-BU8D	5 1	3/4 3/8
		3	CCI Antennas	HPA-65R-BUU-H8		
		3	CCI Antennas	OPA65R-BU8D		
		3	Ericsson	RADIO 4415 B30		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		1	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC9-48-60-24-8C-EV		
		1	--	HRK 12 Handrail Kit		
		1	--	Platform Mount [LP 303-1]		
114.0	114.0	4	Ericsson	AIR 32 B2A/B66AA	4 1	1-5/8 1/2
		8	Ericsson	RADIO 4449 B12/B71		
		4	RFS Celwave	APXVAARR24_43-U-NA20		
		1	RFS Celwave	SC2-W100AB		
		1	Site Pro1	F4P-HRK12 Handrail		
		1	Sitepro1	F4P-12W Mount		
79.0	82.0	1	RFS Celwave	PD1109E	1	1/2
	79.0	1	--	Side Arm Mount [SO 701-1]		
16.0	16.0	1	GPS	GPS_A	1	1/2
		1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	1631601	CCI Sites
Mount Analysis Report	9541806	CCI Sites
Tower Modification Drawing	4491592	CCI Sites
Post Modification Inspection	5215998	CCI Sites
Foundation Drawing	1634518	CCI Sites
Geotech Report	1531964	CCI Sites
Crown CAD Package	Date: 02/10/2021	CCI Sites

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the - TIA-222 standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	148 - 143	Pole	TP24.87x24x0.219	1	-5.705	--	6.3%	Pass
L2	143 - 138	Pole	TP25.74x24.87x0.219	2	-6.100	--	10.6%	Pass
L3	138 - 133	Pole	TP26.61x25.74x0.219	3	-10.303	--	18.7%	Pass
L4	133 - 128	Pole	TP27.479x26.61x0.219	4	-10.779	--	25.0%	Pass
L5	128 - 123	Pole	TP28.349x27.479x0.219	5	-14.944	--	34.5%	Pass
L6	123 - 116.5	Pole	TP29.48x28.349x0.219	6	-15.243	--	39.1%	Pass
L7	116.5 - 115.25	Pole	TP29.26x28.39x0.25	7	-16.143	--	38.0%	Pass
L8	115.25 - 110.25	Pole	TP30.13x29.26x0.25	8	-22.615	--	46.0%	Pass
L9	110.25 - 105.25	Pole	TP31x30.13x0.25	9	-23.359	--	53.4%	Pass
L10	105.25 - 100.25	Pole	TP31.87x31x0.25	10	-24.130	--	60.3%	Pass
L11	100.25 - 98.75	Pole	TP32.131x31.87x0.25	11	-24.360	--	62.2%	Pass
L12	98.75 - 98.5	Pole	TP32.175x32.131x0.25	12	-24.415	--	62.5%	Pass
L13	98.5 - 98.25	Pole + Reinf.	TP32.218x32.175x0.45	13	-24.471	--	51.6%	Pass
L14	98.25 - 93.25	Pole + Reinf.	TP33.088x32.218x0.444	14	-25.575	--	56.8%	Pass
L15	93.25 - 88.25	Pole + Reinf.	TP33.958x33.088x0.438	15	-26.712	--	61.7%	Pass
L16	88.25 - 80.25	Pole + Reinf.	TP35.35x33.958x0.438	16	-27.520	--	64.9%	Pass
L17	80.25 - 79.75	Pole + Reinf.	TP34.937x34.067x0.5	17	-29.625	--	61.9%	Pass
L18	79.75 - 74.75	Pole + Reinf.	TP35.808x34.937x0.488	18	-31.032	--	65.5%	Pass
L19	74.75 - 69.75	Pole + Reinf.	TP36.678x35.808x0.488	19	-32.373	--	68.8%	Pass
L20	69.75 - 66.75	Pole + Reinf.	TP37.2x36.678x0.488	20	-33.188	--	70.6%	Pass
L21	66.75 - 66.5	Pole + Reinf.	TP37.244x37.2x0.625	21	-33.277	--	53.9%	Pass
L22	66.5 - 61.5	Pole + Reinf.	TP38.114x37.244x0.613	22	-34.910	--	54.2%	Pass
L23	61.5 - 56.5	Pole + Reinf.	TP38.984x38.114x0.613	23	-36.568	--	56.4%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L24	56.5 - 51.5	Pole + Reinf.	TP39.855x38.984x0.6	24	-38.248	--	58.5%	Pass
L25	51.5 - 46.5	Pole + Reinf.	TP40.725x39.855x0.6	25	-39.949	--	60.5%	Pass
L26	46.5 - 39.75	Pole + Reinf.	TP41.9x40.725x0.588	26	-40.461	--	61.0%	Pass
L27	39.75 - 38.75	Pole + Reinf.	TP41.448x40.361x0.65	27	-44.413	--	58.6%	Pass
L28	38.75 - 33.75	Pole + Reinf.	TP42.318x41.448x0.65	28	-46.316	--	60.1%	Pass
L29	33.75 - 31.75	Pole + Reinf.	TP42.666x42.318x0.65	29	-47.085	--	63.1%	Pass
L30	31.75 - 31.5	Pole + Reinf.	TP42.71x42.666x0.65	30	-47.187	--	63.1%	Pass
L31	31.5 - 26.5	Pole + Reinf.	TP43.58x42.71x0.638	31	-49.119	--	62.1%	Pass
L32	26.5 - 21.5	Pole + Reinf.	TP44.45x43.58x0.625	32	-51.080	--	63.4%	Pass
L33	21.5 - 17.75	Pole + Reinf.	TP45.102x44.45x0.625	33	-52.565	--	64.3%	Pass
L34	17.75 - 17.5	Pole + Reinf.	TP45.145x45.102x0.725	34	-52.689	--	60.2%	Pass
L35	17.5 - 14.25	Pole + Reinf.	TP45.711x45.145x0.725	35	-54.269	--	61.0%	Pass
L36	14.25 - 14	Pole + Reinf.	TP45.754x45.711x0.638	36	-54.381	--	65.8%	Pass
L37	14 - 9	Pole + Reinf.	TP46.624x45.754x0.625	37	-56.506	--	66.9%	Pass
L38	9 - 4	Pole + Reinf.	TP47.494x46.624x0.625	38	-58.660	--	68.0%	Pass
L39	4 - 0	Pole + Reinf.	TP48.19x47.494x0.625	39	-60.400	--	68.8%	Pass
							Summary	
						Pole (L12)	62.5	Pass
						Reinforcement	70.6	Pass
						Rating =	70.6	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	51.0	Pass
1,2	Anchor Rod Brackets	Base	58.9	Pass
1,2	Base Plate	Base	52.6	Pass
1,2	Base Foundation (Structure)	Base	43.3	Pass
1,2	Base Foundation (Soil Interaction)	Base	80.2	Pass
1,2	Concrete Breakout	Base	66.2	Pass

Structure Rating (max from all components) =	80.2%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.

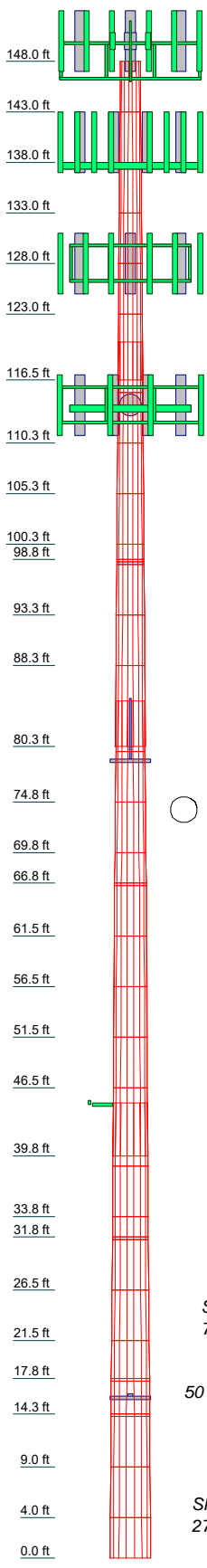
4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1		18	0.219	3.750	29.2608	30.1300	A607-60	24.000
2		18	0.219	3.750	29.2608	30.1300	A607-60	24.870
3		18	0.219	3.750	29.2608	30.1300	A607-60	25.740
4		18	0.219	3.750	29.2608	30.1300	A607-60	26.610
5		18	0.219	3.750	29.2608	30.1300	A607-60	27.479
6		18	0.219	3.750	29.2608	30.1300	A607-60	28.349
7		18	0.219	3.750	29.2608	30.1300	A607-60	29.219
8		18	0.250	4.500	30.1300	31.0000	A607-60	30.088
9		18	0.250	4.500	30.1300	31.0000	A607-60	30.958
10		18	0.250	4.500	30.1300	31.0000	A607-60	31.828
11		18	0.250	4.500	30.1300	31.0000	A607-60	32.698
12		18	0.250	4.500	30.1300	31.0000	A607-60	33.568
13		18	0.250	4.500	30.1300	31.0000	A607-60	34.438
14		18	0.250	4.500	30.1300	31.0000	A607-60	35.308
15		18	0.250	4.500	30.1300	31.0000	A607-60	36.178
16		18	0.250	4.500	30.1300	31.0000	A607-60	37.048
17		18	0.250	4.500	30.1300	31.0000	A607-60	37.918
18		18	0.250	4.500	30.1300	31.0000	A607-60	38.788
19		18	0.250	4.500	30.1300	31.0000	A607-60	39.658
20		18	0.250	4.500	30.1300	31.0000	A607-60	40.528
21		18	0.250	4.500	30.1300	31.0000	A607-60	41.398
22		18	0.250	4.500	30.1300	31.0000	A607-60	42.268
23		18	0.250	4.500	30.1300	31.0000	A607-60	43.138
24		18	0.250	4.500	30.1300	31.0000	A607-60	44.008
25		18	0.250	4.500	30.1300	31.0000	A607-60	44.878
26		18	0.250	4.500	30.1300	31.0000	A607-60	45.748
27		18	0.250	4.500	30.1300	31.0000	A607-60	46.618
28		18	0.250	4.500	30.1300	31.0000	A607-60	47.488
29		18	0.250	4.500	30.1300	31.0000	A607-60	48.358
30		18	0.250	4.500	30.1300	31.0000	A607-60	49.228
31		18	0.250	4.500	30.1300	31.0000	A607-60	50.098
32		18	0.250	4.500	30.1300	31.0000	A607-60	50.968
33		18	0.250	4.500	30.1300	31.0000	A607-60	51.838
34		18	0.250	4.500	30.1300	31.0000	A607-60	52.708
35		18	0.250	4.500	30.1300	31.0000	A607-60	53.578
36		18	0.250	4.500	30.1300	31.0000	A607-60	54.448
37		18	0.250	4.500	30.1300	31.0000	A607-60	55.318
38		18	0.250	4.500	30.1300	31.0000	A607-60	56.188
39		18	0.250	4.500	30.1300	31.0000	A607-60	57.058

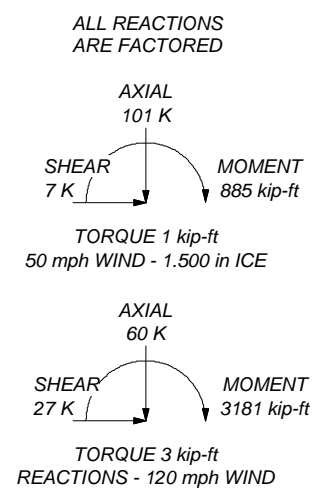


MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 70.6%



B+T Group

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 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job: 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 87637)		
Project:		
Client: Crown Castle	Drawn by: Suhas	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:		Dwg No. E-1

Vx

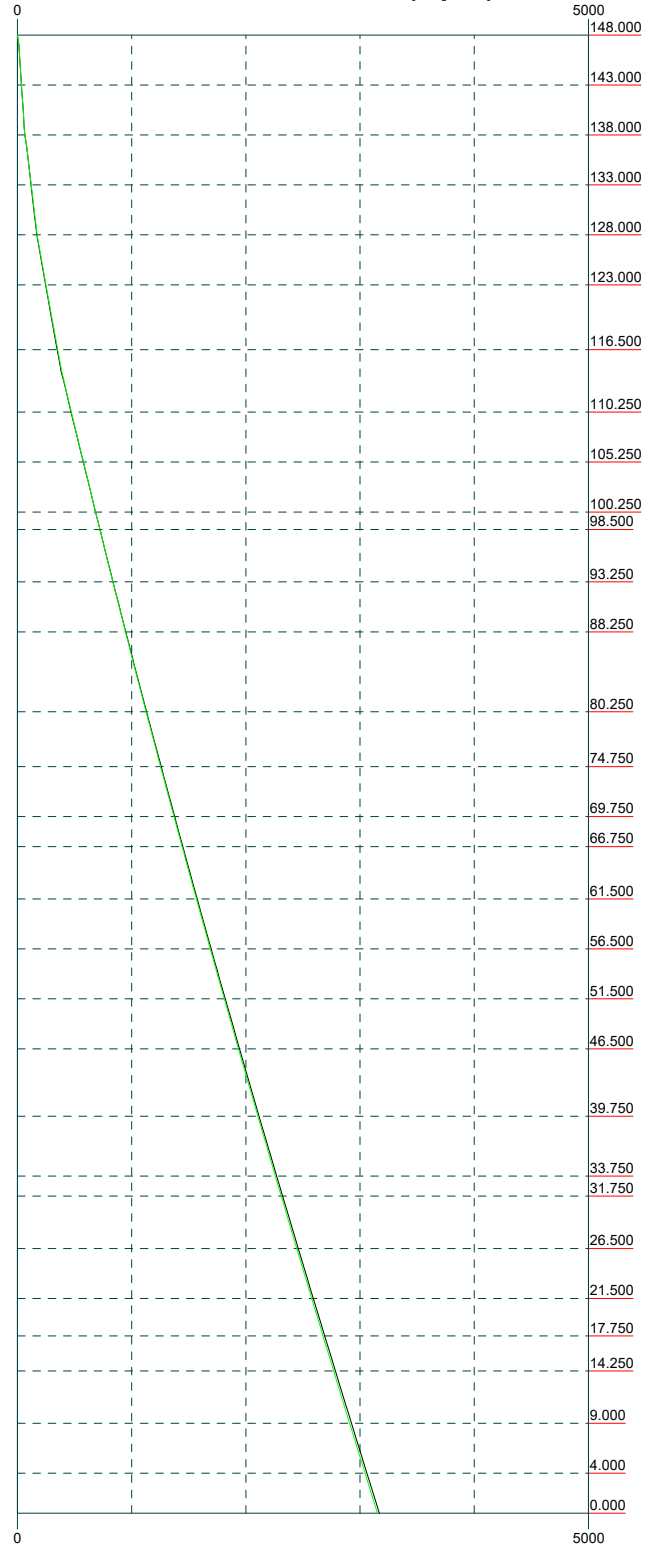
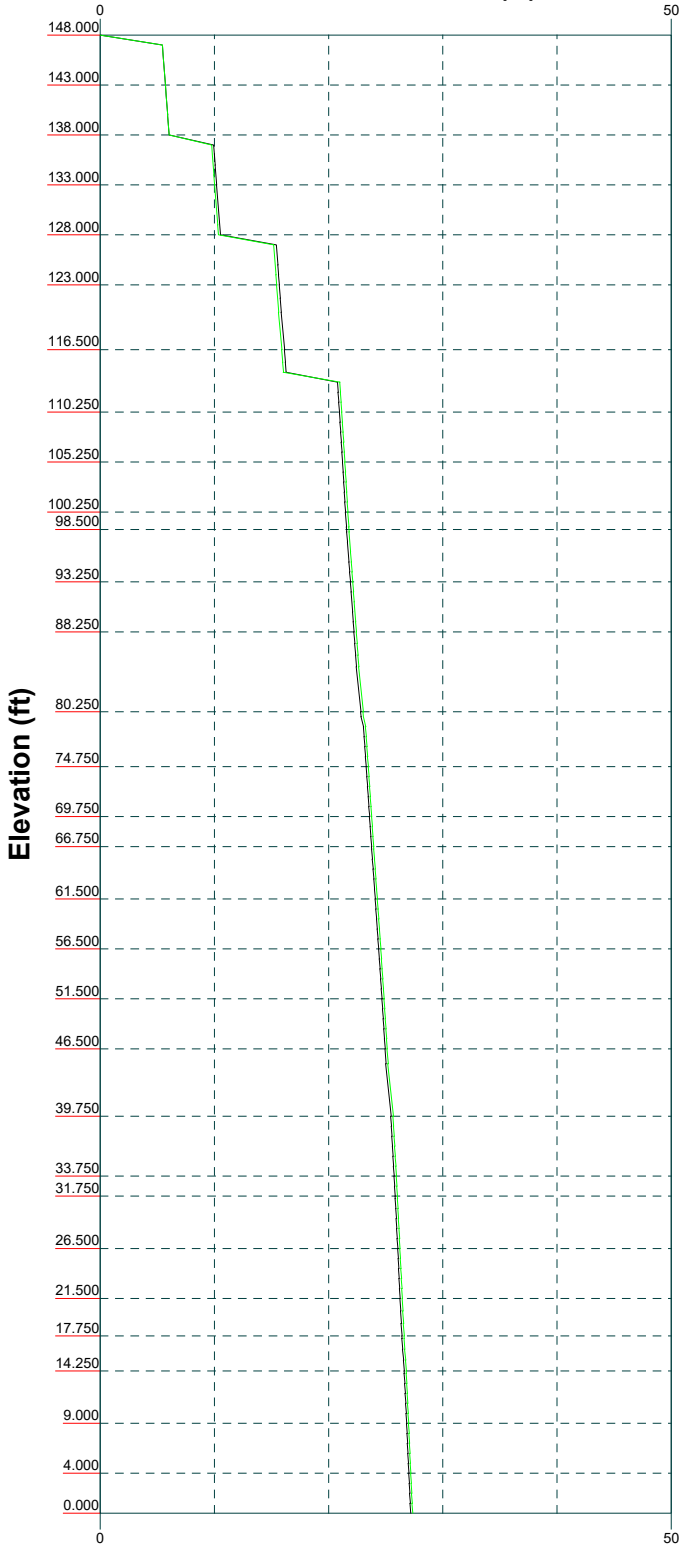
Vz

Mx

Mz

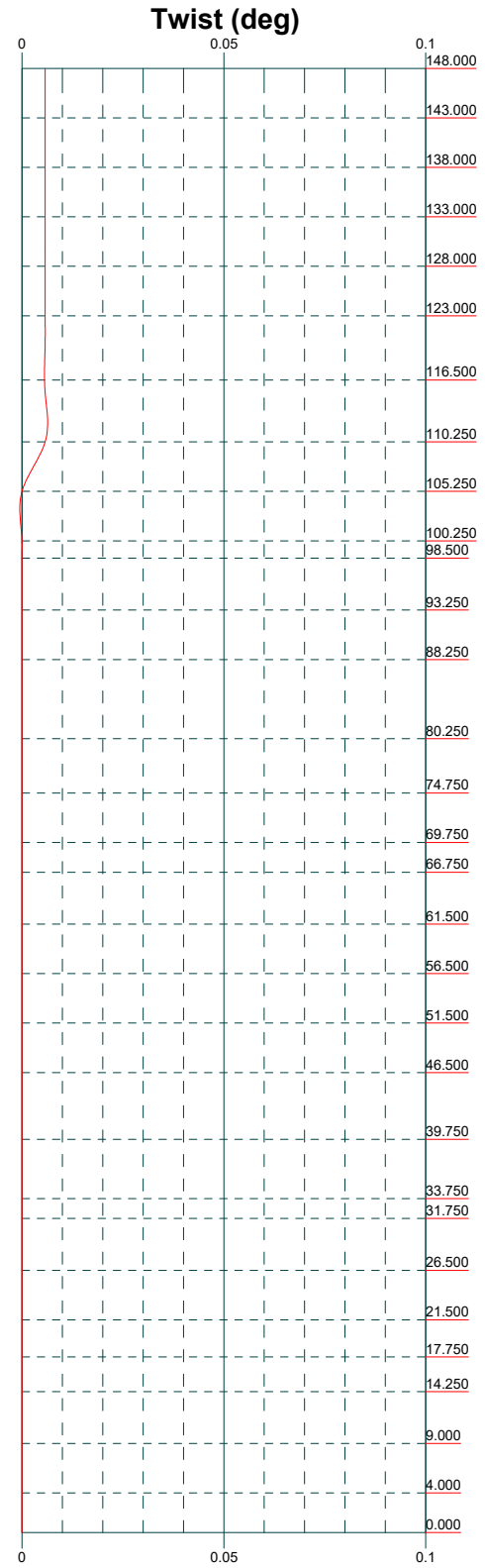
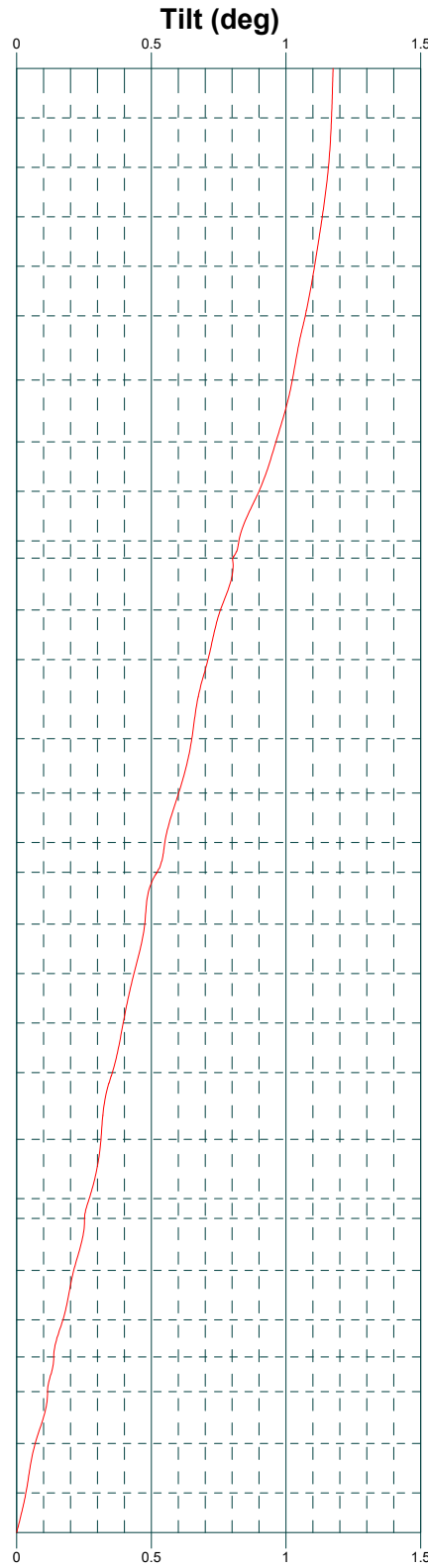
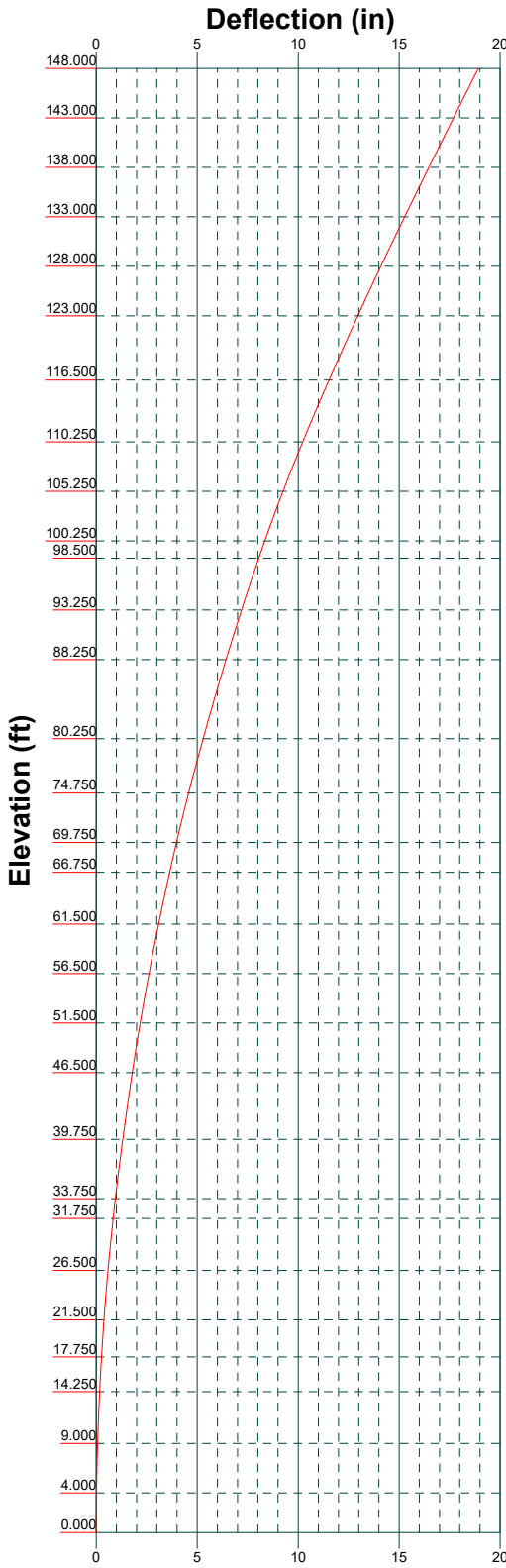
Global Mast Shear (K)

Global Mast Moment (kip-ft)



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Project:		
Client: Crown Castle	Drawn by: Suhas	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:	Dwg No. E-4	



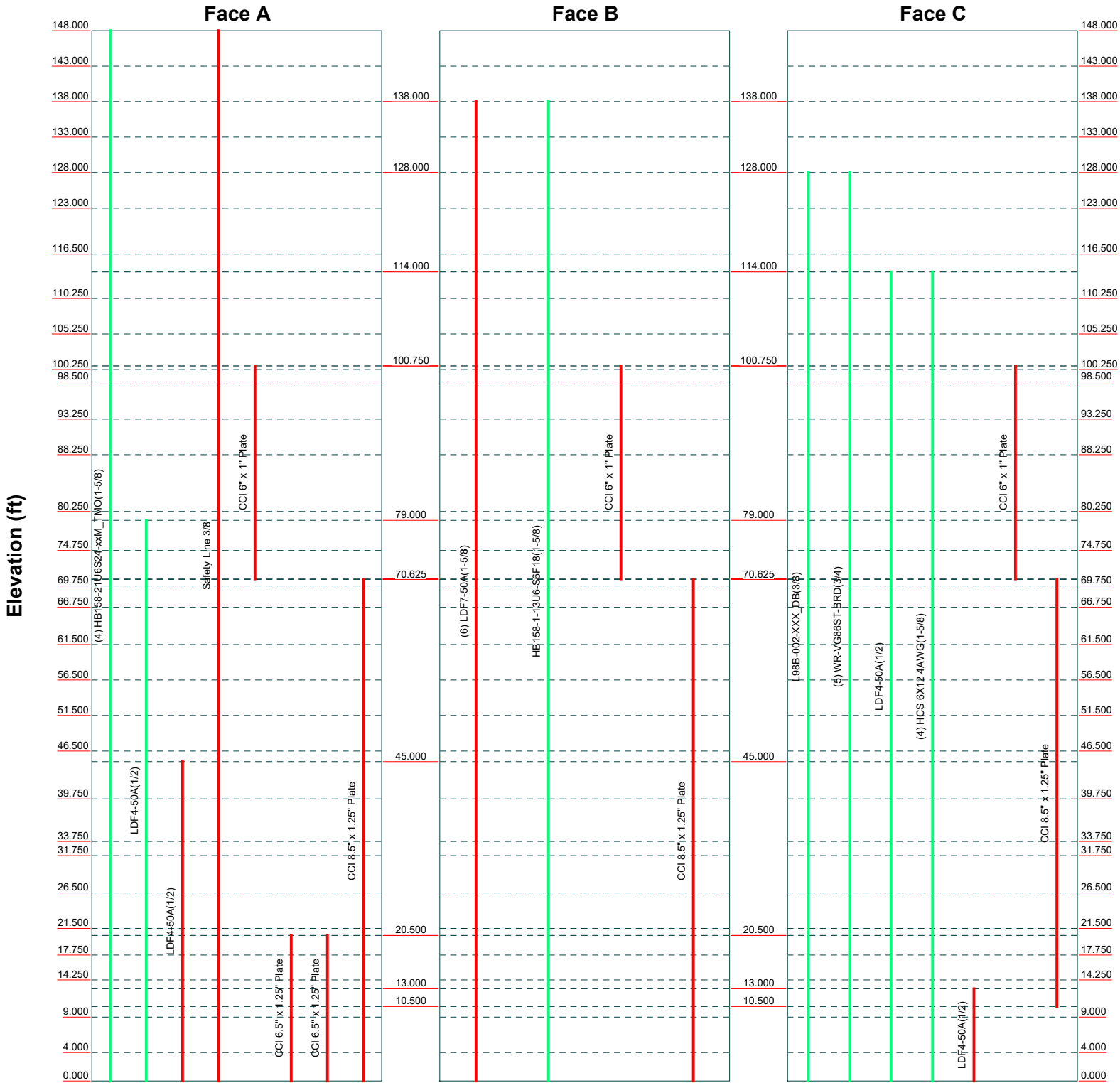
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Job: 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 87637)		
Project:		
Client: Crown Castle	Drawn by: Suhas	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:		Dwg No. E-5

Feed Line Distribution Chart

0' - 148'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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Job: 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 87637)		
Project:		
Client: Crown Castle	Drawn by: Suhas	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:		Dwg No. E-7

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 1 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- Tower is located in Litchfield County, Connecticut.
- Tower base elevation above sea level: 1095.000 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- TIA-222-H Annex S.
- TOWER RATING:70.6%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{cs}(F_w) = 0.95$, $K_{cs}(t_i) = 0.85$.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|---|

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	148.000-143.000	5.000	0.000	18	24.000	24.870	0.219	0.875	A607-60 (60 ksi)
L2	143.000-138.000	5.000	0.000	18	24.870	25.740	0.219	0.875	A607-60 (60 ksi)
L3	138.000-133.000	5.000	0.000	18	25.740	26.610	0.219	0.875	A607-60 (60 ksi)
L4	133.000-128.000	5.000	0.000	18	26.610	27.479	0.219	0.875	A607-60 (60 ksi)
L5	128.000-123.000	5.000	0.000	18	27.479	28.349	0.219	0.875	A607-60 (60 ksi)
L6	123.000-116.500	6.500	3.750	18	28.349	29.480	0.219	0.875	A607-60 (60 ksi)
L7	116.500-115.250	5.000	0.000	18	28.390	29.260	0.250	1.000	A607-65 (65 ksi)
L8	115.250-110.250	5.000	0.000	18	29.260	30.130	0.250	1.000	A607-65 (65 ksi)
L9	110.250-105.250	5.000	0.000	18	30.130	31.000	0.250	1.000	A607-65 (65 ksi)
L10	105.250-100.250	5.000	0.000	18	31.000	31.870	0.250	1.000	A607-65 (65 ksi)
L11	100.250-98.750	1.500	0.000	18	31.870	32.131	0.250	1.000	A607-65 (65 ksi)
L12	98.750-98.500	0.250	0.000	18	32.131	32.175	0.250	1.000	A607-65 (65 ksi)
L13	98.500-98.250	0.250	0.000	18	32.175	32.218	0.450	1.800	A607-65 (65 ksi)
L14	98.250-93.250	5.000	0.000	18	32.218	33.088	0.444	1.775	A607-65 (65 ksi)
L15	93.250-88.250	5.000	0.000	18	33.088	33.958	0.438	1.750	A607-65 (65 ksi)
L16	88.250-80.250	8.000	4.500	18	33.958	35.350	0.438	1.750	A607-65 (65 ksi)
L17	80.250-79.750	5.000	0.000	18	34.067	34.937	0.500	2.000	A607-65 (65 ksi)
L18	79.750-74.750	5.000	0.000	18	34.937	35.808	0.487	1.950	A607-65 (65 ksi)
L19	74.750-69.750	5.000	0.000	18	35.808	36.678	0.487	1.950	A607-65 (65 ksi)
L20	69.750-66.750	3.000	0.000	18	36.678	37.200	0.487	1.950	A607-65 (65 ksi)
L21	66.750-66.500	0.250	0.000	18	37.200	37.244	0.625	2.500	A607-65 (65 ksi)
L22	66.500-61.500	5.000	0.000	18	37.244	38.114	0.613	2.450	A607-65 (65 ksi)
L23	61.500-56.500	5.000	0.000	18	38.114	38.984	0.613	2.450	A607-65 (65 ksi)
L24	56.500-51.500	5.000	0.000	18	38.984	39.855	0.600	2.400	A607-65 (65 ksi)
L25	51.500-46.500	5.000	0.000	18	39.855	40.725	0.600	2.400	A607-65 (65 ksi)
L26	46.500-39.750	6.750	5.250	18	40.725	41.900	0.588	2.350	A607-65 (65 ksi)
L27	39.750-38.750	6.250	0.000	18	40.361	41.448	0.650	2.600	A607-65 (65 ksi)
L28	38.750-33.750	5.000	0.000	18	41.448	42.318	0.650	2.600	A607-65 (65 ksi)
L29	33.750-31.750	2.000	0.000	18	42.318	42.666	0.650	2.600	A607-65 (65 ksi)

Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 3 of 43
Project	Date 19:26:05 02/13/21
Client Crown Castle	Designed by Suhas

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	31.750-31.500	0.250	0.000	18	42.666	42.710	0.650	2.600	A607-65 (65 ksi)
L31	31.500-26.500	5.000	0.000	18	42.710	43.580	0.637	2.550	A607-65 (65 ksi)
L32	26.500-21.500	5.000	0.000	18	43.580	44.450	0.625	2.500	A607-65 (65 ksi)
L33	21.500-17.750	3.750	0.000	18	44.450	45.102	0.625	2.500	A607-65 (65 ksi)
L34	17.750-17.500	0.250	0.000	18	45.102	45.145	0.725	2.900	A607-65 (65 ksi)
L35	17.500-14.250	3.250	0.000	18	45.145	45.711	0.725	2.900	A607-65 (65 ksi)
L36	14.250-14.000	0.250	0.000	18	45.711	45.754	0.637	2.550	A607-65 (65 ksi)
L37	14.000-9.000	5.000	0.000	18	45.754	46.624	0.625	2.500	A607-65 (65 ksi)
L38	9.000-4.000	5.000	0.000	18	46.624	47.494	0.625	2.500	A607-65 (65 ksi)
L39	4.000-0.000	4.000		18	47.494	48.190	0.625	2.500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	Iv/Q in ²	w in	w/t
L1	24.336	16.512	1179.768	8.442	12.192	96.766	2361.088	8.257	3.839	17.55
	25.220	17.116	1314.017	8.751	12.634	104.007	2629.762	8.559	3.992	18.25
L2	25.220	17.116	1314.017	8.751	12.634	104.007	2629.762	8.559	3.992	18.25
	26.103	17.720	1458.082	9.060	13.076	111.510	2918.083	8.861	4.145	18.949
L3	26.103	17.720	1458.082	9.060	13.076	111.510	2918.083	8.861	4.145	18.949
	26.986	18.323	1612.311	9.369	13.518	119.275	3226.743	9.163	4.298	19.649
L4	26.986	18.323	1612.311	9.369	13.518	119.275	3226.743	9.163	4.298	19.649
	27.870	18.927	1777.049	9.678	13.960	127.300	3556.436	9.465	4.451	20.349
L5	27.870	18.927	1777.049	9.678	13.960	127.300	3556.436	9.465	4.451	20.349
	28.753	19.531	1952.643	9.986	14.401	135.587	3907.855	9.768	4.604	21.049
L6	28.753	19.531	1952.643	9.986	14.401	135.587	3907.855	9.768	4.604	21.049
	29.901	20.316	2197.713	10.388	14.976	146.751	4398.319	10.160	4.803	21.959
L7	29.452	22.329	2233.892	9.990	14.422	154.893	4470.723	11.167	4.557	18.227
	29.673	23.020	2447.554	10.299	14.864	164.662	4898.328	11.512	4.710	18.839
L8	29.673	23.020	2447.554	10.299	14.864	164.662	4898.328	11.512	4.710	18.839
	30.556	23.710	2674.423	10.607	15.306	174.729	5352.365	11.857	4.863	19.452
L9	30.556	23.710	2674.423	10.607	15.306	174.729	5352.365	11.857	4.863	19.452
	31.440	24.400	2914.895	10.916	15.748	185.096	5833.625	12.202	5.016	20.064
L10	31.440	24.400	2914.895	10.916	15.748	185.096	5833.625	12.202	5.016	20.064
	32.323	25.091	3169.366	11.225	16.190	195.761	6342.903	12.548	5.169	20.677
L11	32.323	25.091	3169.366	11.225	16.190	195.761	6342.903	12.548	5.169	20.677
	32.588	25.298	3248.497	11.318	16.323	199.019	6501.268	12.651	5.215	20.86
L12	32.588	25.298	3248.497	11.318	16.323	199.019	6501.268	12.651	5.215	20.86
	32.632	25.332	3261.812	11.333	16.345	199.564	6527.916	12.668	5.223	20.891
L13	32.601	45.312	5761.605	11.262	16.345	352.507	11530.791	22.660	4.871	10.824
	32.646	45.374	5785.338	11.278	16.367	353.481	11578.288	22.691	4.878	10.841
L14	32.647	44.753	5708.354	11.280	16.367	348.777	11424.218	22.381	4.889	11.018
	33.530	45.978	6190.196	11.589	16.809	368.273	12388.536	22.993	5.042	11.363
L15	33.531	45.339	6106.516	11.591	16.809	363.294	12221.067	22.674	5.053	11.551
	34.414	46.547	6607.769	11.900	17.251	383.044	13224.232	23.278	5.207	11.901
L16	34.414	46.547	6607.769	11.900	17.251	383.044	13224.232	23.278	5.207	11.901

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 4 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L17	35.828	48.480	7465.610	12.394	17.958	415.731	14941.043	24.245	5.452	12.461
	35.311	53.271	7583.200	11.916	17.306	438.182	15176.377	26.640	5.116	10.232
	35.399	54.652	8188.481	12.225	17.748	461.370	16387.738	27.331	5.269	10.538
L18	35.401	53.305	7992.466	12.230	17.748	450.326	15995.449	26.658	5.291	10.853
	36.285	54.652	8613.658	12.539	18.190	473.530	17238.649	27.331	5.444	11.167
L19	36.285	54.652	8613.658	12.539	18.190	473.530	17238.649	27.331	5.444	11.167
	37.169	55.998	9266.230	12.848	18.632	497.317	18544.652	28.005	5.597	11.482
L20	37.169	55.998	9266.230	12.848	18.632	497.317	18544.652	28.005	5.597	11.482
	37.699	56.806	9673.157	13.033	18.898	511.869	19359.043	28.409	5.689	11.67
L21	37.678	72.556	12262.663	12.984	18.898	648.897	24541.462	36.285	5.447	8.716
	37.722	72.642	12306.485	13.000	18.920	650.455	24629.164	36.328	5.455	8.728
L22	37.724	71.214	12072.710	13.004	18.920	638.099	24161.306	35.614	5.477	8.942
	38.608	72.906	12953.835	13.313	19.362	669.036	25924.714	36.460	5.630	9.192
L23	38.608	72.906	12953.835	13.313	19.362	669.036	25924.714	36.460	5.630	9.192
	39.491	74.598	13876.821	13.622	19.804	700.706	27771.901	37.306	5.783	9.442
L24	39.493	73.099	13606.909	13.626	19.804	687.076	27231.723	36.557	5.805	9.675
	40.377	74.757	14553.628	13.935	20.246	718.833	29126.407	37.385	5.958	9.931
L25	40.377	74.757	14553.628	13.935	20.246	718.833	29126.407	37.385	5.958	9.931
	41.261	76.414	15543.272	14.244	20.688	751.306	31106.996	38.214	6.112	10.186
L26	41.263	74.845	15233.682	14.249	20.688	736.342	30487.409	37.430	6.134	10.44
	42.456	77.036	16611.034	14.666	21.285	780.403	33243.926	38.526	6.340	10.792
L27	41.811	81.928	16322.819	14.097	20.503	796.101	32667.117	40.972	5.960	9.169
	41.988	84.171	17700.684	14.483	21.056	840.655	35424.659	42.094	6.151	9.463
L28	41.988	84.171	17700.684	14.483	21.056	840.655	35424.659	42.094	6.151	9.463
	42.871	85.966	18857.194	14.792	21.498	877.171	37739.201	42.991	6.304	9.699
L29	42.871	85.966	18857.194	14.792	21.498	877.171	37739.201	42.991	6.304	9.699
	43.224	86.684	19333.547	14.916	21.674	891.996	38692.533	43.350	6.365	9.793
L30	43.224	86.684	19333.547	14.916	21.674	891.996	38692.533	43.350	6.365	9.793
	43.268	86.774	19393.649	14.931	21.697	893.857	38812.816	43.395	6.373	9.805
L31	43.270	85.130	19037.658	14.936	21.697	877.450	38100.366	42.573	6.395	10.031
	44.154	86.890	20243.088	15.244	22.138	914.385	40512.813	43.453	6.548	10.271
L32	44.156	85.211	19863.501	15.249	22.138	897.239	39753.139	42.614	6.570	10.512
	45.039	86.937	21094.867	15.558	22.580	934.213	42217.491	43.477	6.723	10.757
L33	45.039	86.937	21094.867	15.558	22.580	934.213	42217.491	43.477	6.723	10.757
	45.701	88.231	22051.062	15.789	22.912	962.433	44131.139	44.124	6.838	10.941
L34	45.686	102.118	25407.086	15.754	22.912	1108.909	50847.603	51.069	6.662	9.189
	45.730	102.218	25481.863	15.769	22.934	1111.101	50997.256	51.119	6.670	9.199
L35	45.730	102.218	25481.863	15.769	22.934	1111.101	50997.256	51.119	6.670	9.199
	46.304	103.519	26467.358	15.970	23.221	1139.797	52969.543	51.769	6.769	9.337
L36	46.318	91.203	23409.088	16.001	23.221	1008.095	46848.979	45.610	6.923	10.86
	46.362	91.291	23476.920	16.016	23.243	1010.055	46984.731	45.654	6.931	10.872
L37	46.364	89.525	23035.724	16.021	23.243	991.073	46101.759	44.771	6.953	11.124
	47.247	91.251	24393.610	16.330	23.685	1029.913	48819.319	45.634	7.106	11.369
L38	47.247	91.251	24393.610	16.330	23.685	1029.913	48819.319	45.634	7.106	11.369
	48.130	92.977	25803.837	16.639	24.127	1069.500	51641.628	46.497	7.259	11.614
L39	48.130	92.977	25803.837	16.639	24.127	1069.500	51641.628	46.497	7.259	11.614
	48.837	94.357	26970.369	16.886	24.481	1101.707	53976.227	47.188	7.381	11.81

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 148.000-143.000				1	1	1			
L2 143.000-138.000				1	1	1			
L3 138.000-133.000				1	1	1			

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 6 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L29				1	1	0.948428			
33.750-31.750									
L30				1	1	0.948044			
31.750-31.500									
L31				1	1	0.958686			
31.500-26.500									
L32				1	1	0.970081			
26.500-21.500									
L33				1	1	0.964652			
21.500-17.750									
L34				1	1	0.992141			
17.750-17.500									
L35				1	1	0.986172			
17.500-14.250									
L36				1	1	1.00245			
14.250-14.000									
L37				1	1	1.01423			
14.000-9.000									
L38				1	1	1.00654			
9.000-4.000									
L39				1	1	1.00059			
4.000-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*										
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	138.000 - 0.000	6	6	-0.350 -0.050	1.980		0.001
*										
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	45.000 - 0.000	1	1	-0.150 -0.130	0.630		0.000
*										
LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	13.000 - 0.000	1	1	0.000 0.020	0.630		0.000
*										
Safety Line 3/8	A	No	Surface Ar (CaAa)	148.000 - 0.000	1	1	-0.050 -0.040	0.375		0.000
*										
CCI 6" x 1" Plate	A	No	Surface Af (CaAa)	100.750 - 70.750	1	1	0.000 0.050	6.000	14.000	0.000
CCI 6" x 1" Plate	B	No	Surface Af (CaAa)	100.750 - 70.750	1	1	0.000 0.050	6.000	14.000	0.000
CCI 6" x 1" Plate	C	No	Surface Af (CaAa)	100.750 - 70.750	1	1	0.000 0.050	6.000	14.000	0.000
*										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	20.500 - 0.000	1	1	0.100 0.150	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	20.500 - 0.000	1	1	-0.150 -0.100	6.500	15.500	0.000
*										
CCI 8.5" x 1.25" Plate	A	No	Surface Af	70.625 -	1	1	0.000	8.500	19.500	0.000

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 7 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
			(CaAa)	0.000			0.050			
CCI 8.5" x 1.25" Plate	B	No	Surface Af	70.625 - 0.000	1	1	0.000 - 0.050	8.500	19.500	0.000
CCI 8.5" x 1.25" Plate	C	No	Surface Af	70.625 - 10.500	1	1	0.000 - 0.050	8.500	19.500	0.000
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
HB158-21U6S24-xx M_TMO(1-5/8)	A	No	No	Inside Pole	148.000 - 0.000	4	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
HB158-1-13U6-S6F 18(1-5/8)	B	No	No	Inside Pole	138.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
*									
L98B-002-XXX_DB (3/8)	C	No	No	Inside Pole	128.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	128.000 - 0.000	5	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF4-50A(1/2)	C	No	No	Inside Pole	114.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	114.000 - 0.000	4	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
*									
LDF4-50A(1/2)	A	No	No	Inside Pole	79.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
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Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	148.000-143.000	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	143.000-138.000	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L3	138.000-133.000	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	5.940	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.000
L4	133.000-128.000	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	5.940	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.000
L5	128.000-123.000	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	5.940	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.015
L6	123.000-116.500	A	0.000	0.000	0.244	0.000	0.066
		B	0.000	0.000	7.722	0.000	0.044
		C	0.000	0.000	0.000	0.000	0.019
L7	116.500-115.250	A	0.000	0.000	0.047	0.000	0.013
		B	0.000	0.000	1.485	0.000	0.009
		C	0.000	0.000	0.000	0.000	0.004
L8	115.250-110.250	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	5.940	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.051
L9	110.250-105.250	A	0.000	0.000	0.188	0.000	0.051
		B	0.000	0.000	5.940	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.064
L10	105.250-100.250	A	0.000	0.000	0.688	0.000	0.051
		B	0.000	0.000	6.440	0.000	0.034
		C	0.000	0.000	0.500	0.000	0.064
L11	100.250-98.750	A	0.000	0.000	1.556	0.000	0.015
		B	0.000	0.000	3.282	0.000	0.010
		C	0.000	0.000	1.500	0.000	0.019
L12	98.750-98.500	A	0.000	0.000	0.259	0.000	0.003
		B	0.000	0.000	0.547	0.000	0.002
		C	0.000	0.000	0.250	0.000	0.003
L13	98.500-98.250	A	0.000	0.000	0.259	0.000	0.003
		B	0.000	0.000	0.547	0.000	0.002
		C	0.000	0.000	0.250	0.000	0.003
L14	98.250-93.250	A	0.000	0.000	5.188	0.000	0.051
		B	0.000	0.000	10.940	0.000	0.034
		C	0.000	0.000	5.000	0.000	0.064
L15	93.250-88.250	A	0.000	0.000	5.188	0.000	0.051
		B	0.000	0.000	10.940	0.000	0.034
		C	0.000	0.000	5.000	0.000	0.064
L16	88.250-80.250	A	0.000	0.000	8.300	0.000	0.082
		B	0.000	0.000	17.504	0.000	0.055
		C	0.000	0.000	8.000	0.000	0.102
L17	80.250-79.750	A	0.000	0.000	0.519	0.000	0.005
		B	0.000	0.000	1.094	0.000	0.003
		C	0.000	0.000	0.500	0.000	0.006
L18	79.750-74.750	A	0.000	0.000	5.188	0.000	0.052
		B	0.000	0.000	10.940	0.000	0.034
		C	0.000	0.000	5.000	0.000	0.064
L19	74.750-69.750	A	0.000	0.000	5.427	0.000	0.052
		B	0.000	0.000	11.180	0.000	0.034
		C	0.000	0.000	5.240	0.000	0.064
L20	69.750-66.750	A	0.000	0.000	4.362	0.000	0.031
		B	0.000	0.000	7.814	0.000	0.020
		C	0.000	0.000	4.250	0.000	0.038
L21	66.750-66.500	A	0.000	0.000	0.364	0.000	0.003

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	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B	0.000	0.000	0.651	0.000	0.002
		C	0.000	0.000	0.354	0.000	0.003
L22	66.500-61.500	A	0.000	0.000	7.271	0.000	0.052
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L23	61.500-56.500	A	0.000	0.000	7.271	0.000	0.052
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L24	56.500-51.500	A	0.000	0.000	7.271	0.000	0.052
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L25	51.500-46.500	A	0.000	0.000	7.271	0.000	0.052
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L26	46.500-39.750	A	0.000	0.000	10.146	0.000	0.071
		B	0.000	0.000	17.581	0.000	0.046
		C	0.000	0.000	9.563	0.000	0.086
L27	39.750-38.750	A	0.000	0.000	1.517	0.000	0.011
		B	0.000	0.000	2.605	0.000	0.007
		C	0.000	0.000	1.417	0.000	0.013
L28	38.750-33.750	A	0.000	0.000	7.586	0.000	0.053
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L29	33.750-31.750	A	0.000	0.000	3.034	0.000	0.021
		B	0.000	0.000	5.209	0.000	0.014
		C	0.000	0.000	2.833	0.000	0.025
L30	31.750-31.500	A	0.000	0.000	0.379	0.000	0.003
		B	0.000	0.000	0.651	0.000	0.002
		C	0.000	0.000	0.354	0.000	0.003
L31	31.500-26.500	A	0.000	0.000	7.586	0.000	0.053
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L32	26.500-21.500	A	0.000	0.000	7.586	0.000	0.053
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	7.083	0.000	0.064
L33	21.500-17.750	A	0.000	0.000	11.648	0.000	0.039
		B	0.000	0.000	9.768	0.000	0.026
		C	0.000	0.000	5.313	0.000	0.048
L34	17.750-17.500	A	0.000	0.000	0.921	0.000	0.003
		B	0.000	0.000	0.651	0.000	0.002
		C	0.000	0.000	0.354	0.000	0.003
L35	17.500-14.250	A	0.000	0.000	11.972	0.000	0.034
		B	0.000	0.000	8.465	0.000	0.022
		C	0.000	0.000	4.604	0.000	0.041
L36	14.250-14.000	A	0.000	0.000	0.921	0.000	0.003
		B	0.000	0.000	0.651	0.000	0.002
		C	0.000	0.000	0.354	0.000	0.003
L37	14.000-9.000	A	0.000	0.000	18.419	0.000	0.053
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	5.210	0.000	0.064
L38	9.000-4.000	A	0.000	0.000	18.419	0.000	0.053
		B	0.000	0.000	13.023	0.000	0.034
		C	0.000	0.000	0.315	0.000	0.064
L39	4.000-0.000	A	0.000	0.000	14.735	0.000	0.042
		B	0.000	0.000	10.419	0.000	0.027
		C	0.000	0.000	0.252	0.000	0.052

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	148.000-143.000	A	1.479	0.000	0.000	1.666	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	143.000-138.000	A	1.474	0.000	0.000	1.661	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L3	138.000-133.000	A	1.468	0.000	0.000	1.656	0.000	0.068
		B		0.000	0.000	9.261	0.000	0.130
		C		0.000	0.000	0.000	0.000	0.000
L4	133.000-128.000	A	1.463	0.000	0.000	1.650	0.000	0.068
		B		0.000	0.000	9.254	0.000	0.129
		C		0.000	0.000	0.000	0.000	0.000
L5	128.000-123.000	A	1.457	0.000	0.000	1.645	0.000	0.067
		B		0.000	0.000	9.246	0.000	0.129
		C		0.000	0.000	0.000	0.000	0.015
L6	123.000-116.500	A	1.450	0.000	0.000	2.129	0.000	0.087
		B		0.000	0.000	12.009	0.000	0.167
		C		0.000	0.000	0.000	0.000	0.019
L7	116.500-115.250	A	1.446	0.000	0.000	0.409	0.000	0.017
		B		0.000	0.000	2.309	0.000	0.032
		C		0.000	0.000	0.000	0.000	0.004
L8	115.250-110.250	A	1.442	0.000	0.000	1.629	0.000	0.067
		B		0.000	0.000	9.227	0.000	0.128
		C		0.000	0.000	0.000	0.000	0.051
L9	110.250-105.250	A	1.435	0.000	0.000	1.623	0.000	0.067
		B		0.000	0.000	9.219	0.000	0.127
		C		0.000	0.000	0.000	0.000	0.064
L10	105.250-100.250	A	1.428	0.000	0.000	2.259	0.000	0.072
		B		0.000	0.000	9.853	0.000	0.132
		C		0.000	0.000	0.643	0.000	0.069
L11	100.250-98.750	A	1.424	0.000	0.000	2.411	0.000	0.036
		B		0.000	0.000	4.689	0.000	0.054
		C		0.000	0.000	1.927	0.000	0.035
L12	98.750-98.500	A	1.423	0.000	0.000	0.402	0.000	0.006
		B		0.000	0.000	0.781	0.000	0.009
		C		0.000	0.000	0.321	0.000	0.006
L13	98.500-98.250	A	1.422	0.000	0.000	0.402	0.000	0.006
		B		0.000	0.000	0.781	0.000	0.009
		C		0.000	0.000	0.321	0.000	0.006
L14	98.250-93.250	A	1.418	0.000	0.000	8.024	0.000	0.120
		B		0.000	0.000	15.616	0.000	0.180
		C		0.000	0.000	6.418	0.000	0.117
L15	93.250-88.250	A	1.411	0.000	0.000	8.009	0.000	0.120
		B		0.000	0.000	15.599	0.000	0.179
		C		0.000	0.000	6.411	0.000	0.117
L16	88.250-80.250	A	1.400	0.000	0.000	12.781	0.000	0.190
		B		0.000	0.000	24.921	0.000	0.284
		C		0.000	0.000	10.240	0.000	0.186
L17	80.250-79.750	A	1.393	0.000	0.000	0.799	0.000	0.012
		B		0.000	0.000	1.558	0.000	0.018
		C		0.000	0.000	0.640	0.000	0.012
L18	79.750-74.750	A	1.388	0.000	0.000	7.964	0.000	0.119
		B		0.000	0.000	15.548	0.000	0.176
		C		0.000	0.000	6.388	0.000	0.116
L19	74.750-69.750	A	1.379	0.000	0.000	8.150	0.000	0.119
		B		0.000	0.000	15.733	0.000	0.176
		C		0.000	0.000	6.584	0.000	0.116
L20	69.750-66.750	A	1.371	0.000	0.000	6.008	0.000	0.079
		B		0.000	0.000	10.556	0.000	0.113
		C		0.000	0.000	5.073	0.000	0.078

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L21	66.750-66.500	A	1.368	0.000	0.000	0.500	0.000	0.007
		B		0.000	0.000	0.879	0.000	0.009
		C		0.000	0.000	0.423	0.000	0.006
L22	66.500-61.500	A	1.362	0.000	0.000	9.995	0.000	0.132
		B		0.000	0.000	17.573	0.000	0.188
		C		0.000	0.000	8.446	0.000	0.129
L23	61.500-56.500	A	1.351	0.000	0.000	9.973	0.000	0.131
		B		0.000	0.000	17.549	0.000	0.186
		C		0.000	0.000	8.435	0.000	0.128
L24	56.500-51.500	A	1.339	0.000	0.000	9.950	0.000	0.130
		B		0.000	0.000	17.522	0.000	0.185
		C		0.000	0.000	8.423	0.000	0.128
L25	51.500-46.500	A	1.326	0.000	0.000	9.924	0.000	0.129
		B		0.000	0.000	17.493	0.000	0.183
		C		0.000	0.000	8.410	0.000	0.127
L26	46.500-39.750	A	1.310	0.000	0.000	15.057	0.000	0.189
		B		0.000	0.000	23.564	0.000	0.245
		C		0.000	0.000	11.330	0.000	0.170
L27	39.750-38.750	A	1.297	0.000	0.000	2.303	0.000	0.029
		B		0.000	0.000	3.491	0.000	0.036
		C		0.000	0.000	1.679	0.000	0.025
L28	38.750-33.750	A	1.287	0.000	0.000	11.447	0.000	0.142
		B		0.000	0.000	17.404	0.000	0.179
		C		0.000	0.000	8.370	0.000	0.125
L29	33.750-31.750	A	1.274	0.000	0.000	4.563	0.000	0.056
		B		0.000	0.000	6.950	0.000	0.071
		C		0.000	0.000	3.343	0.000	0.050
L30	31.750-31.500	A	1.270	0.000	0.000	0.570	0.000	0.007
		B		0.000	0.000	0.868	0.000	0.009
		C		0.000	0.000	0.418	0.000	0.006
L31	31.500-26.500	A	1.259	0.000	0.000	11.362	0.000	0.139
		B		0.000	0.000	17.340	0.000	0.175
		C		0.000	0.000	8.342	0.000	0.123
L32	26.500-21.500	A	1.235	0.000	0.000	11.291	0.000	0.137
		B		0.000	0.000	17.287	0.000	0.172
		C		0.000	0.000	8.318	0.000	0.122
L33	21.500-17.750	A	1.210	0.000	0.000	15.703	0.000	0.153
		B		0.000	0.000	12.924	0.000	0.127
		C		0.000	0.000	6.220	0.000	0.090
L34	17.750-17.500	A	1.197	0.000	0.000	1.220	0.000	0.011
		B		0.000	0.000	0.860	0.000	0.008
		C		0.000	0.000	0.414	0.000	0.006
L35	17.500-14.250	A	1.185	0.000	0.000	15.824	0.000	0.146
		B		0.000	0.000	11.163	0.000	0.108
		C		0.000	0.000	5.374	0.000	0.077
L36	14.250-14.000	A	1.171	0.000	0.000	1.214	0.000	0.011
		B		0.000	0.000	0.857	0.000	0.008
		C		0.000	0.000	0.413	0.000	0.006
L37	14.000-9.000	A	1.147	0.000	0.000	24.156	0.000	0.217
		B		0.000	0.000	17.090	0.000	0.162
		C		0.000	0.000	6.931	0.000	0.111
L38	9.000-4.000	A	1.084	0.000	0.000	23.838	0.000	0.206
		B		0.000	0.000	16.947	0.000	0.154
		C		0.000	0.000	1.399	0.000	0.076
L39	4.000-0.000	A	0.963	0.000	0.000	18.588	0.000	0.148
		B		0.000	0.000	13.340	0.000	0.112
		C		0.000	0.000	1.022	0.000	0.059

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 12 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Feed Line Center of Pressure

Section	Elevation ft	CP _x	CP _z	CP _x	CP _z
		in	in	Ice in	Ice in
L1	148.000-143.000	-0.274	-0.125	-1.210	-0.554
L2	143.000-138.000	-0.274	-0.125	-1.215	-0.556
L3	138.000-133.000	3.302	-4.836	1.971	-3.989
L4	133.000-128.000	3.340	-4.893	2.002	-4.051
L5	128.000-123.000	3.377	-4.948	2.032	-4.110
L6	123.000-116.500	3.418	-5.009	2.066	-4.176
L7	116.500-115.250	3.428	-5.024	2.074	-4.192
L8	115.250-110.250	3.449	-5.055	2.093	-4.225
L9	110.250-105.250	3.483	-5.105	2.121	-4.279
L10	105.250-100.250	3.211	-4.706	2.024	-4.079
L11	100.250-98.750	1.825	-2.675	1.344	-2.707
L12	98.750-98.500	1.830	-2.683	1.348	-2.715
L13	98.500-98.250	1.832	-2.686	1.350	-2.718
L14	98.250-93.250	1.848	-2.709	1.362	-2.741
L15	93.250-88.250	1.878	-2.754	1.386	-2.786
L16	88.250-80.250	1.917	-2.810	1.416	-2.842
L17	80.250-79.750	1.925	-2.822	1.422	-2.855
L18	79.750-74.750	1.941	-2.846	1.436	-2.877
L19	74.750-69.750	1.926	-2.825	1.442	-2.885
L20	69.750-66.750	1.671	-2.450	1.321	-2.639
L21	66.750-66.500	1.679	-2.463	1.329	-2.652
L22	66.500-61.500	1.693	-2.482	1.340	-2.672
L23	61.500-56.500	1.718	-2.519	1.361	-2.709
L24	56.500-51.500	1.743	-2.556	1.382	-2.745
L25	51.500-46.500	1.767	-2.592	1.403	-2.781
L26	46.500-39.750	1.660	-2.647	0.983	-2.862
L27	39.750-38.750	1.624	-2.653	0.861	-2.875
L28	38.750-33.750	1.637	-2.674	0.879	-2.893
L29	33.750-31.750	1.652	-2.699	0.893	-2.917
L30	31.750-31.500	1.657	-2.707	0.897	-2.924
L31	31.500-26.500	1.668	-2.725	0.908	-2.941
L32	26.500-21.500	1.689	-2.760	0.931	-2.973
L33	21.500-17.750	-1.465	-4.014	-1.571	-3.984
L34	17.750-17.500	-2.386	-4.387	-2.330	-4.297
L35	17.500-14.250	-2.397	-4.408	-2.335	-4.314
L36	14.250-14.000	-2.409	-4.428	-2.339	-4.330
L37	14.000-9.000	-2.417	-5.500	-2.312	-4.844
L38	9.000-4.000	-2.448	-8.699	-2.291	-7.162
L39	4.000-0.000	-2.475	-8.793	-2.246	-7.259

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	21	Safety Line 3/8	143.00 - 148.00	1.0000	1.0000
L2	21	Safety Line 3/8	138.00 - 143.00	1.0000	1.0000
L3	4	LDF7-50A(1-5/8)	133.00 -	1.0000	1.0000

tnxTower

B+T Group
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Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 13 of 43
Project	Date 19:26:05 02/13/21
Client Crown Castle	Designed by Suhas

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			138.00		
L3	21	Safety Line 3/8	133.00 - 138.00	1.0000	1.0000
L4	4	LDF7-50A(1-5/8)	128.00 - 133.00	1.0000	1.0000
L4	21	Safety Line 3/8	128.00 - 133.00	1.0000	1.0000
L5	4	LDF7-50A(1-5/8)	123.00 - 128.00	1.0000	1.0000
L5	21	Safety Line 3/8	123.00 - 128.00	1.0000	1.0000
L6	4	LDF7-50A(1-5/8)	116.50 - 123.00	1.0000	1.0000
L6	21	Safety Line 3/8	116.50 - 123.00	1.0000	1.0000
L7	4	LDF7-50A(1-5/8)	115.25 - 116.50	1.0000	1.0000
L7	21	Safety Line 3/8	115.25 - 116.50	1.0000	1.0000
L8	4	LDF7-50A(1-5/8)	110.25 - 115.25	1.0000	1.0000
L8	21	Safety Line 3/8	110.25 - 115.25	1.0000	1.0000
L9	4	LDF7-50A(1-5/8)	105.25 - 110.25	1.0000	1.0000
L9	21	Safety Line 3/8	105.25 - 110.25	1.0000	1.0000
L10	4	LDF7-50A(1-5/8)	100.25 - 105.25	1.0000	1.0000
L10	21	Safety Line 3/8	100.25 - 105.25	1.0000	1.0000
L10	23	CCI 6" x 1" Plate	100.25 - 100.75	1.0000	1.0000
L10	24	CCI 6" x 1" Plate	100.25 - 100.75	1.0000	1.0000
L10	25	CCI 6" x 1" Plate	100.25 - 100.75	1.0000	1.0000
L11	4	LDF7-50A(1-5/8)	98.75 - 100.25	1.0000	1.0000
L11	21	Safety Line 3/8	98.75 - 100.25	1.0000	1.0000
L11	23	CCI 6" x 1" Plate	98.75 - 100.25	1.0000	1.0000
L11	24	CCI 6" x 1" Plate	98.75 - 100.25	1.0000	1.0000
L11	25	CCI 6" x 1" Plate	98.75 - 100.25	1.0000	1.0000
L12	4	LDF7-50A(1-5/8)	98.50 - 98.75	1.0000	1.0000
L12	21	Safety Line 3/8	98.50 - 98.75	1.0000	1.0000
L12	23	CCI 6" x 1" Plate	98.50 - 98.75	1.0000	1.0000
L12	24	CCI 6" x 1" Plate	98.50 - 98.75	1.0000	1.0000
L12	25	CCI 6" x 1" Plate	98.50 - 98.75	1.0000	1.0000
L13	4	LDF7-50A(1-5/8)	98.25 - 98.50	1.0000	1.0000
L13	21	Safety Line 3/8	98.25 - 98.50	1.0000	1.0000
L13	23	CCI 6" x 1" Plate	98.25 - 98.50	1.0000	1.0000
L13	24	CCI 6" x 1" Plate	98.25 - 98.50	1.0000	1.0000
L13	25	CCI 6" x 1" Plate	98.25 - 98.50	1.0000	1.0000
L14	4	LDF7-50A(1-5/8)	93.25 - 98.25	1.0000	1.0000
L14	21	Safety Line 3/8	93.25 - 98.25	1.0000	1.0000
L14	23	CCI 6" x 1" Plate	93.25 - 98.25	1.0000	1.0000
L14	24	CCI 6" x 1" Plate	93.25 - 98.25	1.0000	1.0000
L14	25	CCI 6" x 1" Plate	93.25 - 98.25	1.0000	1.0000
L15	4	LDF7-50A(1-5/8)	88.25 - 93.25	1.0000	1.0000
L15	21	Safety Line 3/8	88.25 - 93.25	1.0000	1.0000
L15	23	CCI 6" x 1" Plate	88.25 - 93.25	1.0000	1.0000
L15	24	CCI 6" x 1" Plate	88.25 - 93.25	1.0000	1.0000
L15	25	CCI 6" x 1" Plate	88.25 - 93.25	1.0000	1.0000

tnxTower

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89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU#
876373)

Page
14 of 43

Project

Date
19:26:05 02/13/21

Client
Crown Castle

Designed by
Suhas

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	4	LDF7-50A(1-5/8)	80.25 - 88.25	1.0000	1.0000
L16	21	Safety Line 3/8	80.25 - 88.25	1.0000	1.0000
L16	23	CCI 6" x 1" Plate	80.25 - 88.25	1.0000	1.0000
L16	24	CCI 6" x 1" Plate	80.25 - 88.25	1.0000	1.0000
L16	25	CCI 6" x 1" Plate	80.25 - 88.25	1.0000	1.0000
L17	4	LDF7-50A(1-5/8)	79.75 - 80.25	1.0000	1.0000
L17	21	Safety Line 3/8	79.75 - 80.25	1.0000	1.0000
L17	23	CCI 6" x 1" Plate	79.75 - 80.25	1.0000	1.0000
L17	24	CCI 6" x 1" Plate	79.75 - 80.25	1.0000	1.0000
L17	25	CCI 6" x 1" Plate	79.75 - 80.25	1.0000	1.0000
L18	4	LDF7-50A(1-5/8)	74.75 - 79.75	1.0000	1.0000
L18	21	Safety Line 3/8	74.75 - 79.75	1.0000	1.0000
L18	23	CCI 6" x 1" Plate	74.75 - 79.75	1.0000	1.0000
L18	24	CCI 6" x 1" Plate	74.75 - 79.75	1.0000	1.0000
L18	25	CCI 6" x 1" Plate	74.75 - 79.75	1.0000	1.0000
L19	4	LDF7-50A(1-5/8)	69.75 - 74.75	1.0000	1.0000
L19	21	Safety Line 3/8	69.75 - 74.75	1.0000	1.0000
L19	23	CCI 6" x 1" Plate	70.75 - 74.75	1.0000	1.0000
L19	24	CCI 6" x 1" Plate	70.75 - 74.75	1.0000	1.0000
L19	25	CCI 6" x 1" Plate	70.75 - 74.75	1.0000	1.0000
L19	30	CCI 8.5" x 1.25" Plate	69.75 - 70.63	1.0000	1.0000
L19	31	CCI 8.5" x 1.25" Plate	69.75 - 70.63	1.0000	1.0000
L19	32	CCI 8.5" x 1.25" Plate	69.75 - 70.63	1.0000	1.0000
L20	4	LDF7-50A(1-5/8)	66.75 - 69.75	1.0000	1.0000
L20	21	Safety Line 3/8	66.75 - 69.75	1.0000	1.0000
L20	30	CCI 8.5" x 1.25" Plate	66.75 - 69.75	1.0000	1.0000
L20	31	CCI 8.5" x 1.25" Plate	66.75 - 69.75	1.0000	1.0000
L20	32	CCI 8.5" x 1.25" Plate	66.75 - 69.75	1.0000	1.0000
L21	4	LDF7-50A(1-5/8)	66.50 - 66.75	1.0000	1.0000
L21	21	Safety Line 3/8	66.50 - 66.75	1.0000	1.0000
L21	30	CCI 8.5" x 1.25" Plate	66.50 - 66.75	1.0000	1.0000
L21	31	CCI 8.5" x 1.25" Plate	66.50 - 66.75	1.0000	1.0000
L21	32	CCI 8.5" x 1.25" Plate	66.50 - 66.75	1.0000	1.0000
L22	4	LDF7-50A(1-5/8)	61.50 - 66.50	1.0000	1.0000
L22	21	Safety Line 3/8	61.50 - 66.50	1.0000	1.0000
L22	30	CCI 8.5" x 1.25" Plate	61.50 - 66.50	1.0000	1.0000
L22	31	CCI 8.5" x 1.25" Plate	61.50 - 66.50	1.0000	1.0000
L22	32	CCI 8.5" x 1.25" Plate	61.50 - 66.50	1.0000	1.0000
L23	4	LDF7-50A(1-5/8)	56.50 - 61.50	1.0000	1.0000
L23	21	Safety Line 3/8	56.50 - 61.50	1.0000	1.0000
L23	30	CCI 8.5" x 1.25" Plate	56.50 - 61.50	1.0000	1.0000
L23	31	CCI 8.5" x 1.25" Plate	56.50 - 61.50	1.0000	1.0000
L23	32	CCI 8.5" x 1.25" Plate	56.50 - 61.50	1.0000	1.0000
L24	4	LDF7-50A(1-5/8)	51.50 - 56.50	1.0000	1.0000
L24	21	Safety Line 3/8	51.50 - 56.50	1.0000	1.0000
L24	30	CCI 8.5" x 1.25" Plate	51.50 - 56.50	1.0000	1.0000
L24	31	CCI 8.5" x 1.25" Plate	51.50 - 56.50	1.0000	1.0000
L24	32	CCI 8.5" x 1.25" Plate	51.50 - 56.50	1.0000	1.0000
L25	4	LDF7-50A(1-5/8)	46.50 - 51.50	1.0000	1.0000
L25	21	Safety Line 3/8	46.50 - 51.50	1.0000	1.0000
L25	30	CCI 8.5" x 1.25" Plate	46.50 - 51.50	1.0000	1.0000
L25	31	CCI 8.5" x 1.25" Plate	46.50 - 51.50	1.0000	1.0000
L25	32	CCI 8.5" x 1.25" Plate	46.50 - 51.50	1.0000	1.0000
L26	4	LDF7-50A(1-5/8)	39.75 - 46.50	1.0000	1.0000
L26	16	LDF4-50A(1/2)	39.75 - 45.00	1.0000	1.0000
L26	21	Safety Line 3/8	39.75 - 46.50	1.0000	1.0000
L26	30	CCI 8.5" x 1.25" Plate	39.75 - 46.50	1.0000	1.0000
L26	31	CCI 8.5" x 1.25" Plate	39.75 - 46.50	1.0000	1.0000
L26	32	CCI 8.5" x 1.25" Plate	39.75 - 46.50	1.0000	1.0000
L27	4	LDF7-50A(1-5/8)	38.75 - 39.75	1.0000	1.0000
L27	16	LDF4-50A(1/2)	38.75 - 39.75	1.0000	1.0000
L27	21	Safety Line 3/8	38.75 - 39.75	1.0000	1.0000

tnxTower

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Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 15 of 43
Project	Date 19:26:05 02/13/21
Client Crown Castle	Designed by Suhas

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L27	30	CCI 8.5" x 1.25" Plate	38.75 - 39.75	1.0000	1.0000
L27	31	CCI 8.5" x 1.25" Plate	38.75 - 39.75	1.0000	1.0000
L27	32	CCI 8.5" x 1.25" Plate	38.75 - 39.75	1.0000	1.0000
L28	4	LDF7-50A(1-5/8)	33.75 - 38.75	1.0000	1.0000
L28	16	LDF4-50A(1/2)	33.75 - 38.75	1.0000	1.0000
L28	21	Safety Line 3/8	33.75 - 38.75	1.0000	1.0000
L28	30	CCI 8.5" x 1.25" Plate	33.75 - 38.75	1.0000	1.0000
L28	31	CCI 8.5" x 1.25" Plate	33.75 - 38.75	1.0000	1.0000
L28	32	CCI 8.5" x 1.25" Plate	33.75 - 38.75	1.0000	1.0000
L29	4	LDF7-50A(1-5/8)	31.75 - 33.75	1.0000	1.0000
L29	16	LDF4-50A(1/2)	31.75 - 33.75	1.0000	1.0000
L29	21	Safety Line 3/8	31.75 - 33.75	1.0000	1.0000
L29	30	CCI 8.5" x 1.25" Plate	31.75 - 33.75	1.0000	1.0000
L29	31	CCI 8.5" x 1.25" Plate	31.75 - 33.75	1.0000	1.0000
L29	32	CCI 8.5" x 1.25" Plate	31.75 - 33.75	1.0000	1.0000
L30	4	LDF7-50A(1-5/8)	31.50 - 31.75	1.0000	1.0000
L30	16	LDF4-50A(1/2)	31.50 - 31.75	1.0000	1.0000
L30	21	Safety Line 3/8	31.50 - 31.75	1.0000	1.0000
L30	30	CCI 8.5" x 1.25" Plate	31.50 - 31.75	1.0000	1.0000
L30	31	CCI 8.5" x 1.25" Plate	31.50 - 31.75	1.0000	1.0000
L30	32	CCI 8.5" x 1.25" Plate	31.50 - 31.75	1.0000	1.0000
L31	4	LDF7-50A(1-5/8)	26.50 - 31.50	1.0000	1.0000
L31	16	LDF4-50A(1/2)	26.50 - 31.50	1.0000	1.0000
L31	21	Safety Line 3/8	26.50 - 31.50	1.0000	1.0000
L31	30	CCI 8.5" x 1.25" Plate	26.50 - 31.50	1.0000	1.0000
L31	31	CCI 8.5" x 1.25" Plate	26.50 - 31.50	1.0000	1.0000
L31	32	CCI 8.5" x 1.25" Plate	26.50 - 31.50	1.0000	1.0000
L32	4	LDF7-50A(1-5/8)	21.50 - 26.50	1.0000	1.0000
L32	16	LDF4-50A(1/2)	21.50 - 26.50	1.0000	1.0000
L32	21	Safety Line 3/8	21.50 - 26.50	1.0000	1.0000
L32	30	CCI 8.5" x 1.25" Plate	21.50 - 26.50	1.0000	1.0000
L32	31	CCI 8.5" x 1.25" Plate	21.50 - 26.50	1.0000	1.0000
L32	32	CCI 8.5" x 1.25" Plate	21.50 - 26.50	1.0000	1.0000
L33	4	LDF7-50A(1-5/8)	17.75 - 21.50	1.0000	1.0000
L33	16	LDF4-50A(1/2)	17.75 - 21.50	1.0000	1.0000
L33	21	Safety Line 3/8	17.75 - 21.50	1.0000	1.0000
L33	27	CCI 6.5" x 1.25" Plate	17.75 - 20.50	1.0000	1.0000
L33	28	CCI 6.5" x 1.25" Plate	17.75 - 20.50	1.0000	1.0000
L33	30	CCI 8.5" x 1.25" Plate	17.75 - 21.50	1.0000	1.0000
L33	31	CCI 8.5" x 1.25" Plate	17.75 - 21.50	1.0000	1.0000
L33	32	CCI 8.5" x 1.25" Plate	17.75 - 21.50	1.0000	1.0000
L34	4	LDF7-50A(1-5/8)	17.50 - 17.75	1.0000	1.0000
L34	16	LDF4-50A(1/2)	17.50 - 17.75	1.0000	1.0000
L34	21	Safety Line 3/8	17.50 - 17.75	1.0000	1.0000
L34	27	CCI 6.5" x 1.25" Plate	17.50 - 17.75	1.0000	1.0000
L34	28	CCI 6.5" x 1.25" Plate	17.50 - 17.75	1.0000	1.0000
L34	30	CCI 8.5" x 1.25" Plate	17.50 - 17.75	1.0000	1.0000
L34	31	CCI 8.5" x 1.25" Plate	17.50 - 17.75	1.0000	1.0000
L34	32	CCI 8.5" x 1.25" Plate	17.50 - 17.75	1.0000	1.0000
L35	4	LDF7-50A(1-5/8)	14.25 - 17.50	1.0000	1.0000
L35	16	LDF4-50A(1/2)	14.25 - 17.50	1.0000	1.0000
L35	21	Safety Line 3/8	14.25 - 17.50	1.0000	1.0000
L35	27	CCI 6.5" x 1.25" Plate	14.25 - 17.50	1.0000	1.0000
L35	28	CCI 6.5" x 1.25" Plate	14.25 - 17.50	1.0000	1.0000
L35	30	CCI 8.5" x 1.25" Plate	14.25 - 17.50	1.0000	1.0000
L35	31	CCI 8.5" x 1.25" Plate	14.25 - 17.50	1.0000	1.0000
L35	32	CCI 8.5" x 1.25" Plate	14.25 - 17.50	1.0000	1.0000
L36	4	LDF7-50A(1-5/8)	14.00 - 14.25	1.0000	1.0000
L36	16	LDF4-50A(1/2)	14.00 - 14.25	1.0000	1.0000
L36	21	Safety Line 3/8	14.00 - 14.25	1.0000	1.0000
L36	27	CCI 6.5" x 1.25" Plate	14.00 - 14.25	1.0000	1.0000
L36	28	CCI 6.5" x 1.25" Plate	14.00 - 14.25	1.0000	1.0000

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 16 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L36	30	CCI 8.5" x 1.25" Plate	14.00 - 14.25	1.0000	1.0000
L36	31	CCI 8.5" x 1.25" Plate	14.00 - 14.25	1.0000	1.0000
L36	32	CCI 8.5" x 1.25" Plate	14.00 - 14.25	1.0000	1.0000
L37	4	LDF7-50A(1-5/8)	9.00 - 14.00	1.0000	1.0000
L37	16	LDF4-50A(1/2)	9.00 - 14.00	1.0000	1.0000
L37	18	LDF4-50A(1/2)	9.00 - 13.00	1.0000	1.0000
L37	21	Safety Line 3/8	9.00 - 14.00	1.0000	1.0000
L37	27	CCI 6.5" x 1.25" Plate	9.00 - 14.00	1.0000	1.0000
L37	28	CCI 6.5" x 1.25" Plate	9.00 - 14.00	1.0000	1.0000
L37	30	CCI 8.5" x 1.25" Plate	9.00 - 14.00	1.0000	1.0000
L37	31	CCI 8.5" x 1.25" Plate	9.00 - 14.00	1.0000	1.0000
L37	32	CCI 8.5" x 1.25" Plate	10.50 - 14.00	1.0000	1.0000
L38	4	LDF7-50A(1-5/8)	4.00 - 9.00	1.0000	1.0000
L38	16	LDF4-50A(1/2)	4.00 - 9.00	1.0000	1.0000
L38	18	LDF4-50A(1/2)	4.00 - 9.00	1.0000	1.0000
L38	21	Safety Line 3/8	4.00 - 9.00	1.0000	1.0000
L38	27	CCI 6.5" x 1.25" Plate	4.00 - 9.00	1.0000	1.0000
L38	28	CCI 6.5" x 1.25" Plate	4.00 - 9.00	1.0000	1.0000
L38	30	CCI 8.5" x 1.25" Plate	4.00 - 9.00	1.0000	1.0000
L38	31	CCI 8.5" x 1.25" Plate	4.00 - 9.00	1.0000	1.0000
L39	4	LDF7-50A(1-5/8)	0.00 - 4.00	1.0000	1.0000
L39	16	LDF4-50A(1/2)	0.00 - 4.00	1.0000	1.0000
L39	18	LDF4-50A(1/2)	0.00 - 4.00	1.0000	1.0000
L39	21	Safety Line 3/8	0.00 - 4.00	1.0000	1.0000
L39	27	CCI 6.5" x 1.25" Plate	0.00 - 4.00	1.0000	1.0000
L39	28	CCI 6.5" x 1.25" Plate	0.00 - 4.00	1.0000	1.0000
L39	30	CCI 8.5" x 1.25" Plate	0.00 - 4.00	1.0000	1.0000
L39	31	CCI 8.5" x 1.25" Plate	0.00 - 4.00	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L10	23	CCI 6" x 1" Plate	100.25 - 100.75	Auto	0.1398
L10	24	CCI 6" x 1" Plate	100.25 - 100.75	Auto	0.1398
L10	25	CCI 6" x 1" Plate	100.25 - 100.75	Auto	0.1398
L11	23	CCI 6" x 1" Plate	98.75 - 100.25	Auto	0.1347
L11	24	CCI 6" x 1" Plate	98.75 - 100.25	Auto	0.1347
L11	25	CCI 6" x 1" Plate	98.75 - 100.25	Auto	0.1347
L12	23	CCI 6" x 1" Plate	98.50 - 98.75	Auto	0.1302
L12	24	CCI 6" x 1" Plate	98.50 - 98.75	Auto	0.1302
L12	25	CCI 6" x 1" Plate	98.50 - 98.75	Auto	0.1302
L13	23	CCI 6" x 1" Plate	98.25 - 98.50	Auto	0.1876
L13	24	CCI 6" x 1" Plate	98.25 - 98.50	Auto	0.1876
L13	25	CCI 6" x 1" Plate	98.25 - 98.50	Auto	0.1876
L14	23	CCI 6" x 1" Plate	93.25 - 98.25	Auto	0.1723
L14	24	CCI 6" x 1" Plate	93.25 - 98.25	Auto	0.1723
L14	25	CCI 6" x 1" Plate	93.25 - 98.25	Auto	0.1723
L15	23	CCI 6" x 1" Plate	88.25 - 93.25	Auto	0.1450
L15	24	CCI 6" x 1" Plate	88.25 - 93.25	Auto	0.1450

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L15	25	CCI 6" x 1" Plate	88.25 - 93.25	Auto	0.1450
L16	23	CCI 6" x 1" Plate	80.25 - 88.25	Auto	0.1118
L16	24	CCI 6" x 1" Plate	80.25 - 88.25	Auto	0.1118
L16	25	CCI 6" x 1" Plate	80.25 - 88.25	Auto	0.1118
L17	23	CCI 6" x 1" Plate	79.75 - 80.25	Auto	0.1231
L17	24	CCI 6" x 1" Plate	79.75 - 80.25	Auto	0.1231
L17	25	CCI 6" x 1" Plate	79.75 - 80.25	Auto	0.1231
L18	23	CCI 6" x 1" Plate	74.75 - 79.75	Auto	0.1054
L18	24	CCI 6" x 1" Plate	74.75 - 79.75	Auto	0.1054
L18	25	CCI 6" x 1" Plate	74.75 - 79.75	Auto	0.1054
L19	23	CCI 6" x 1" Plate	70.75 - 74.75	Auto	0.0824
L19	24	CCI 6" x 1" Plate	70.75 - 74.75	Auto	0.0824
L19	25	CCI 6" x 1" Plate	70.75 - 74.75	Auto	0.0824
L19	30	CCI 8.5" x 1.25" Plate	69.75 - 70.63	Auto	0.3431
L19	31	CCI 8.5" x 1.25" Plate	69.75 - 70.63	Auto	0.3431
L19	32	CCI 8.5" x 1.25" Plate	69.75 - 70.63	Auto	0.3431
L20	30	CCI 8.5" x 1.25" Plate	66.75 - 69.75	Auto	0.3361
L20	31	CCI 8.5" x 1.25" Plate	66.75 - 69.75	Auto	0.3361
L20	32	CCI 8.5" x 1.25" Plate	66.75 - 69.75	Auto	0.3361
L21	30	CCI 8.5" x 1.25" Plate	66.50 - 66.75	Auto	0.3587
L21	31	CCI 8.5" x 1.25" Plate	66.50 - 66.75	Auto	0.3587
L21	32	CCI 8.5" x 1.25" Plate	66.50 - 66.75	Auto	0.3587
L22	30	CCI 8.5" x 1.25" Plate	61.50 - 66.50	Auto	0.3466
L22	31	CCI 8.5" x 1.25" Plate	61.50 - 66.50	Auto	0.3466
L22	32	CCI 8.5" x 1.25" Plate	61.50 - 66.50	Auto	0.3466
L23	30	CCI 8.5" x 1.25" Plate	56.50 - 61.50	Auto	0.3286
L23	31	CCI 8.5" x 1.25" Plate	56.50 - 61.50	Auto	0.3286
L23	32	CCI 8.5" x 1.25" Plate	56.50 - 61.50	Auto	0.3286
L24	30	CCI 8.5" x 1.25" Plate	51.50 - 56.50	Auto	0.3080
L24	31	CCI 8.5" x 1.25" Plate	51.50 - 56.50	Auto	0.3080
L24	32	CCI 8.5" x 1.25" Plate	51.50 - 56.50	Auto	0.3080
L25	30	CCI 8.5" x 1.25" Plate	46.50 - 51.50	Auto	0.2900
L25	31	CCI 8.5" x 1.25" Plate	46.50 - 51.50	Auto	0.2900
L25	32	CCI 8.5" x 1.25" Plate	46.50 - 51.50	Auto	0.2900
L26	30	CCI 8.5" x 1.25" Plate	39.75 - 46.50	Auto	0.2662
L26	31	CCI 8.5" x 1.25" Plate	39.75 - 46.50	Auto	0.2662
L26	32	CCI 8.5" x 1.25" Plate	39.75 - 46.50	Auto	0.2662
L27	30	CCI 8.5" x 1.25" Plate	38.75 - 39.75	Auto	0.2782
L27	31	CCI 8.5" x 1.25" Plate	38.75 - 39.75	Auto	0.2782
L27	32	CCI 8.5" x 1.25" Plate	38.75 - 39.75	Auto	0.2782
L28	30	CCI 8.5" x 1.25" Plate	33.75 - 38.75	Auto	0.2674
L28	31	CCI 8.5" x 1.25" Plate	33.75 - 38.75	Auto	0.2674
L28	32	CCI 8.5" x 1.25" Plate	33.75 - 38.75	Auto	0.2674
L29	30	CCI 8.5" x 1.25" Plate	31.75 - 33.75	Auto	0.2547
L29	31	CCI 8.5" x 1.25" Plate	31.75 - 33.75	Auto	0.2547
L29	32	CCI 8.5" x 1.25" Plate	31.75 - 33.75	Auto	0.2547
L30	30	CCI 8.5" x 1.25" Plate	31.50 - 31.75	Auto	0.2507
L30	31	CCI 8.5" x 1.25" Plate	31.50 - 31.75	Auto	0.2507
L30	32	CCI 8.5" x 1.25" Plate	31.50 - 31.75	Auto	0.2507
L31	30	CCI 8.5" x 1.25" Plate	26.50 - 31.50	Auto	0.2387
L31	31	CCI 8.5" x 1.25" Plate	26.50 - 31.50	Auto	0.2387
L31	32	CCI 8.5" x 1.25" Plate	26.50 - 31.50	Auto	0.2387
L32	30	CCI 8.5" x 1.25" Plate	21.50 - 26.50	Auto	0.2181
L32	31	CCI 8.5" x 1.25" Plate	21.50 - 26.50	Auto	0.2181
L32	32	CCI 8.5" x 1.25" Plate	21.50 - 26.50	Auto	0.2181
L33	27	CCI 6.5" x 1.25" Plate	17.75 - 20.50	Auto	0.0000
L33	28	CCI 6.5" x 1.25" Plate	17.75 - 20.50	Auto	0.0000
L33	30	CCI 8.5" x 1.25" Plate	17.75 - 21.50	Auto	0.2023
L33	31	CCI 8.5" x 1.25" Plate	17.75 - 21.50	Auto	0.2023
L33	32	CCI 8.5" x 1.25" Plate	17.75 - 21.50	Auto	0.2023
L34	27	CCI 6.5" x 1.25" Plate	17.50 - 17.75	Auto	0.0000

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	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L34	28	CCI 6.5" x 1.25" Plate	17.50 - 17.75	Auto	0.0000
L34	30	CCI 8.5" x 1.25" Plate	17.50 - 17.75	Auto	0.2158
L34	31	CCI 8.5" x 1.25" Plate	17.50 - 17.75	Auto	0.2158
L34	32	CCI 8.5" x 1.25" Plate	17.50 - 17.75	Auto	0.2158
L35	27	CCI 6.5" x 1.25" Plate	14.25 - 17.50	Auto	0.0000
L35	28	CCI 6.5" x 1.25" Plate	14.25 - 17.50	Auto	0.0000
L35	30	CCI 8.5" x 1.25" Plate	14.25 - 17.50	Auto	0.2095
L35	31	CCI 8.5" x 1.25" Plate	14.25 - 17.50	Auto	0.2095
L35	32	CCI 8.5" x 1.25" Plate	14.25 - 17.50	Auto	0.2095
L36	27	CCI 6.5" x 1.25" Plate	14.00 - 14.25	Auto	0.0000
L36	28	CCI 6.5" x 1.25" Plate	14.00 - 14.25	Auto	0.0000
L36	30	CCI 8.5" x 1.25" Plate	14.00 - 14.25	Auto	0.1851
L36	31	CCI 8.5" x 1.25" Plate	14.00 - 14.25	Auto	0.1851
L36	32	CCI 8.5" x 1.25" Plate	14.00 - 14.25	Auto	0.1851
L37	27	CCI 6.5" x 1.25" Plate	9.00 - 14.00	Auto	0.0000
L37	28	CCI 6.5" x 1.25" Plate	9.00 - 14.00	Auto	0.0000
L37	30	CCI 8.5" x 1.25" Plate	9.00 - 14.00	Auto	0.1730
L37	31	CCI 8.5" x 1.25" Plate	9.00 - 14.00	Auto	0.1730
L37	32	CCI 8.5" x 1.25" Plate	10.50 - 14.00	Auto	0.1757
L38	27	CCI 6.5" x 1.25" Plate	4.00 - 9.00	Auto	0.0000
L38	28	CCI 6.5" x 1.25" Plate	4.00 - 9.00	Auto	0.0000
L38	30	CCI 8.5" x 1.25" Plate	4.00 - 9.00	Auto	0.1550
L38	31	CCI 8.5" x 1.25" Plate	4.00 - 9.00	Auto	0.1550
L39	27	CCI 6.5" x 1.25" Plate	0.00 - 4.00	Auto	0.0000
L39	28	CCI 6.5" x 1.25" Plate	0.00 - 4.00	Auto	0.0000
L39	30	CCI 8.5" x 1.25" Plate	0.00 - 4.00	Auto	0.1388
L39	31	CCI 8.5" x 1.25" Plate	0.00 - 4.00	Auto	0.1388

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Top Hat	C	None		0.000	149.500	No Ice	3.000	3.000	0.081
						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
* 800MHZ RRH	A	From Leg	1.000 0.000 1.000	0.000	149.000	No Ice	2.134	1.773	0.053
						1/2" Ice	2.320	1.946	0.074
						1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157
800MHZ RRH	B	From Leg	1.000 0.000 1.000	0.000	149.000	No Ice	2.134	1.773	0.053
						1/2" Ice	2.320	1.946	0.074
						1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157
800MHZ RRH	C	From Leg	1.000 0.000 1.000	0.000	149.000	No Ice	2.134	1.773	0.053
						1/2" Ice	2.320	1.946	0.074
						1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 19 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			Horz Lateral ft	Vert ft						
800 EXTERNAL NOTCH FILTER	A	From Leg	1.000	0.000	0.000	149.000	No Ice	0.660	0.321	0.011
			0.000				1/2" Ice	0.763	0.398	0.017
			1.000				1" Ice	0.873	0.483	0.024
							2" Ice	1.115	0.674	0.045
800 EXTERNAL NOTCH FILTER	B	From Leg	1.000	0.000	0.000	149.000	No Ice	0.660	0.321	0.011
			0.000				1/2" Ice	0.763	0.398	0.017
			1.000				1" Ice	0.873	0.483	0.024
							2" Ice	1.115	0.674	0.045
800 EXTERNAL NOTCH FILTER	C	From Leg	1.000	0.000	0.000	149.000	No Ice	0.660	0.321	0.011
			0.000				1/2" Ice	0.763	0.398	0.017
			1.000				1" Ice	0.873	0.483	0.024
							2" Ice	1.115	0.674	0.045
1900MHZ RRH (65MHZ)	A	From Leg	1.000	0.000	0.000	149.000	No Ice	2.313	2.375	0.060
			0.000				1/2" Ice	2.517	2.581	0.084
			1.000				1" Ice	2.728	2.794	0.111
							2" Ice	3.174	3.243	0.176
1900MHZ RRH (65MHZ)	B	From Leg	1.000	0.000	0.000	149.000	No Ice	2.313	2.375	0.060
			0.000				1/2" Ice	2.517	2.581	0.084
			1.000				1" Ice	2.728	2.794	0.111
							2" Ice	3.174	3.243	0.176
1900MHZ RRH (65MHZ)	C	From Leg	1.000	0.000	0.000	149.000	No Ice	2.313	2.375	0.060
			0.000				1/2" Ice	2.517	2.581	0.084
			1.000				1" Ice	2.728	2.794	0.111
							2" Ice	3.174	3.243	0.176
Pipe Mount [PM 601-3]	C	None		0.000	0.000	149.000	No Ice	3.170	3.170	0.195
							1/2" Ice	3.790	3.790	0.232
							1" Ice	4.420	4.420	0.279
							2" Ice	5.760	5.760	0.401
*										
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	148.000	No Ice	6.290	2.760	0.061
			0.000				1/2" Ice	6.860	3.270	0.105
			2.000				1" Ice	7.450	3.790	0.157
							2" Ice	8.680	4.900	0.290
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	148.000	No Ice	6.290	2.760	0.061
			0.000				1/2" Ice	6.860	3.270	0.105
			2.000				1" Ice	7.450	3.790	0.157
							2" Ice	8.680	4.900	0.290
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	148.000	No Ice	6.290	2.760	0.061
			0.000				1/2" Ice	6.860	3.270	0.105
			2.000				1" Ice	7.450	3.790	0.157
							2" Ice	8.680	4.900	0.290
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000				1/2" Ice	15.460	7.550	0.311
			2.000				1" Ice	16.230	8.250	0.453
							2" Ice	17.820	9.670	0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000				1/2" Ice	15.460	7.550	0.311
			2.000				1" Ice	16.230	8.250	0.453
							2" Ice	17.820	9.670	0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000				1/2" Ice	15.460	7.550	0.311
			2.000				1" Ice	16.230	8.250	0.453
							2" Ice	17.820	9.670	0.782
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	148.000	No Ice	5.870	3.270	0.128
			0.000				1/2" Ice	6.233	3.728	0.177
			2.000				1" Ice	6.606	4.203	0.232
							2" Ice	7.382	5.200	0.359

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 20 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			Horz ft	Lateral ft						
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	148.000	No Ice	5.870	3.270	0.128
			0.000				1/2" Ice	6.233	3.728	0.177
			2.000				1" Ice	6.606	4.203	0.232
							2" Ice	7.382	5.200	0.359
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	148.000	No Ice	5.870	3.270	0.128
			0.000				1/2" Ice	6.233	3.728	0.177
			2.000				1" Ice	6.606	4.203	0.232
							2" Ice	7.382	5.200	0.359
RADIO 4415 B66A	A	From Leg	4.000	0.000	0.000	148.000	No Ice	1.856	0.870	0.050
			0.000				1/2" Ice	2.027	0.997	0.064
			2.000				1" Ice	2.204	1.134	0.081
							2" Ice	2.582	1.432	0.124
RADIO 4415 B66A	B	From Leg	4.000	0.000	0.000	148.000	No Ice	1.856	0.870	0.050
			0.000				1/2" Ice	2.027	0.997	0.064
			2.000				1" Ice	2.204	1.134	0.081
							2" Ice	2.582	1.432	0.124
RADIO 4415 B66A	C	From Leg	4.000	0.000	0.000	148.000	No Ice	1.856	0.870	0.050
			0.000				1/2" Ice	2.027	0.997	0.064
			2.000				1" Ice	2.204	1.134	0.081
							2" Ice	2.582	1.432	0.124
RADIO 4424 B25_TMO	A	From Leg	4.000	0.000	0.000	148.000	No Ice	2.052	1.610	0.086
			0.000				1/2" Ice	2.231	1.772	0.107
			2.000				1" Ice	2.417	1.941	0.131
							2" Ice	2.811	2.301	0.188
RADIO 4424 B25_TMO	B	From Leg	4.000	0.000	0.000	148.000	No Ice	2.052	1.610	0.086
			0.000				1/2" Ice	2.231	1.772	0.107
			2.000				1" Ice	2.417	1.941	0.131
							2" Ice	2.811	2.301	0.188
RADIO 4424 B25_TMO	C	From Leg	4.000	0.000	0.000	148.000	No Ice	2.052	1.610	0.086
			0.000				1/2" Ice	2.231	1.772	0.107
			2.000				1" Ice	2.417	1.941	0.131
							2" Ice	2.811	2.301	0.188
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000	0.000	0.000	148.000	No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
			2.000				1" Ice	2.331	1.918	0.116
							2" Ice	2.721	2.280	0.170
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000	0.000	0.000	148.000	No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
			2.000				1" Ice	2.331	1.918	0.116
							2" Ice	2.721	2.280	0.170
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.000	0.000	0.000	148.000	No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
			2.000				1" Ice	2.331	1.918	0.116
							2" Ice	2.721	2.280	0.170
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	148.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			1.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	148.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			1.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	148.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			1.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
Platform Mount [LP	C	None		0.000	148.000	No Ice	26.390	26.390	2.356	

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job		89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)		Page		21 of 43	
	Project				Date		19:26:05 02/13/21	
	Client		Crown Castle		Designed by		Suhas	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
1201-1_HR-1]						1/2" Ice	31.400	31.400	3.061
						1" Ice	36.200	36.200	3.864
						2" Ice	45.400	45.400	5.764
*									
LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	4.564	10.259	0.046
			0.000			1/2" Ice	5.105	11.427	0.113
			2.000			1" Ice	5.612	12.312	0.187
						2" Ice	6.651	14.129	0.363
LPA-80063/6CF w/ Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	9.831	10.215	0.052
			0.000			1/2" Ice	10.400	11.384	0.145
			2.000			1" Ice	10.933	12.269	0.246
						2" Ice	12.026	14.086	0.476
LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	4.564	10.259	0.046
			0.000			1/2" Ice	5.105	11.427	0.113
			2.000			1" Ice	5.612	12.312	0.187
						2" Ice	6.651	14.129	0.363
LPA-80080/6CF	A	From Leg	4.000	0.000	138.000	No Ice	4.326	8.619	0.021
			0.000			1/2" Ice	4.764	9.075	0.069
			2.000			1" Ice	5.210	9.539	0.123
						2" Ice	6.123	10.486	0.251
LPA-80063/6CF	B	From Leg	4.000	0.000	138.000	No Ice	9.567	8.554	0.000
			0.000			1/2" Ice	10.033	9.010	0.074
			2.000			1" Ice	10.505	9.473	0.155
						2" Ice	11.471	10.420	0.336
LPA-80080/6CF	C	From Leg	4.000	0.000	138.000	No Ice	4.326	8.619	0.021
			0.000			1/2" Ice	4.764	9.075	0.069
			2.000			1" Ice	5.210	9.539	0.123
						2" Ice	6.123	10.486	0.251
(2) QS6656-5 w/ Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	4.040	4.180	0.091
			0.000			1/2" Ice	4.420	4.570	0.160
			2.000			1" Ice	4.820	4.970	0.241
						2" Ice	5.630	5.790	0.436
(2) QS6656-5 w/ Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	4.040	4.180	0.091
			0.000			1/2" Ice	4.420	4.570	0.160
			2.000			1" Ice	4.820	4.970	0.241
						2" Ice	5.630	5.790	0.436
(2) QS6656-5 w/ Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	4.040	4.180	0.091
			0.000			1/2" Ice	4.420	4.570	0.160
			2.000			1" Ice	4.820	4.970	0.241
						2" Ice	5.630	5.790	0.436
RFV01U-D1A	A	From Leg	4.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	B	From Leg	4.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	C	From Leg	4.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D2A	A	From Leg	4.000	0.000	138.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	B	From Leg	4.000	0.000	138.000	No Ice	1.875	1.013	0.070

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 22 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz Lateral ft	Vert ft					
				0.000		1/2" Ice	2.045	1.145	0.087
				2.000		1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	C	From Leg	4.000	0.000	138.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
DB-C1-12C-24AB-0Z	C	From Leg	4.000	0.000	138.000	No Ice	4.056	3.098	0.032
			0.000			1/2" Ice	4.316	3.335	0.068
			2.000			1" Ice	4.582	3.580	0.109
						2" Ice	5.138	4.092	0.203
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
Platform Mount [LP 1201-1]	C	None		0.000	138.000	No Ice	18.380	18.380	2.100
						1/2" Ice	22.110	22.110	2.652
						1" Ice	25.870	25.870	3.263
						2" Ice	33.470	33.470	4.662
*									
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.000	0.000	128.000	No Ice	12.250	8.330	0.105
			0.000			1/2" Ice	13.190	9.230	0.194
			0.000			1" Ice	14.160	10.150	0.297
						2" Ice	16.140	12.050	0.543
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	12.250	8.330	0.105
			0.000			1/2" Ice	13.190	9.230	0.194
			0.000			1" Ice	14.160	10.150	0.297
						2" Ice	16.140	12.050	0.543
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	12.250	8.330	0.105
			0.000			1/2" Ice	13.190	9.230	0.194
			0.000			1" Ice	14.160	10.150	0.297
						2" Ice	16.140	12.050	0.543
DC6-48-60-18-8F	A	From Leg	2.000	0.000	128.000	No Ice	1.212	1.212	0.033
			0.000			1/2" Ice	1.892	1.892	0.055
			0.000			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
OPA65R-BU8D w/ Mount Pipe	A	From Leg	4.000	0.000	128.000	No Ice	17.460	8.580	0.109
			0.000			1/2" Ice	18.460	9.490	0.224
			0.000			1" Ice	19.480	10.420	0.353
						2" Ice	21.580	12.330	0.656
OPA65R-BU8D w/ Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	17.460	8.580	0.109
			0.000			1/2" Ice	18.460	9.490	0.224
			0.000			1" Ice	19.480	10.420	0.353
						2" Ice	21.580	12.330	0.656
OPA65R-BU8D w/ Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	17.460	8.580	0.109
			0.000			1/2" Ice	18.460	9.490	0.224
			0.000			1" Ice	19.480	10.420	0.353
						2" Ice	21.580	12.330	0.656
DMP65R-BU8D w/ Mount	A	From Leg	4.000	0.000	128.000	No Ice	15.890	7.890	0.139

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz ft	Lateral ft					
Pipe			0.000			1/2" Ice	16.810	8.740	0.252
			0.000			1" Ice	17.760	9.600	0.380
						2" Ice	19.700	11.370	0.679
DMP65R-BU8D w/ Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	15.890	7.890	0.139
			0.000			1/2" Ice	16.810	8.740	0.252
			0.000			1" Ice	17.760	9.600	0.380
						2" Ice	19.700	11.370	0.679
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	15.890	7.890	0.139
			0.000			1/2" Ice	16.810	8.740	0.252
			0.000			1" Ice	17.760	9.600	0.380
						2" Ice	19.700	11.370	0.679
RRUS 8843 B2/B66A	A	From Leg	4.000	0.000	128.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			0.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	128.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			0.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	B	From Leg	4.000	0.000	128.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			0.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	128.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	128.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	128.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RADIO 4415 B30	A	From Leg	4.000	0.000	128.000	No Ice	1.643	0.639	0.043
			0.000			1/2" Ice	1.803	0.750	0.055
			0.000			1" Ice	1.971	0.867	0.069
						2" Ice	2.328	1.132	0.106
RADIO 4415 B30	B	From Leg	4.000	0.000	128.000	No Ice	1.643	0.639	0.043
			0.000			1/2" Ice	1.803	0.750	0.055
			0.000			1" Ice	1.971	0.867	0.069
						2" Ice	2.328	1.132	0.106
RADIO 4415 B30	C	From Leg	4.000	0.000	128.000	No Ice	1.643	0.639	0.043
			0.000			1/2" Ice	1.803	0.750	0.055
			0.000			1" Ice	1.971	0.867	0.069
						2" Ice	2.328	1.132	0.106
DC9-48-60-24-8C-EV	A	From Leg	4.000	0.000	128.000	No Ice	2.737	4.785	0.026
			0.000			1/2" Ice	2.963	5.065	0.063
			0.000			1" Ice	3.196	5.352	0.104
						2" Ice	3.684	5.948	0.200
8' x 2.375" Mount Pipe	A	From Leg	2.000	0.000	128.000	No Ice	1.900	1.900	0.061
			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
8' x 2.375" Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	1.900	1.900	0.061
			0.000			1/2" Ice	2.728	2.728	0.075

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)		Page 24 of 43	
	Project		Date 19:26:05 02/13/21	
	Client Crown Castle		Designed by Suhas	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			0.000						
8' x 2.375" Mount Pipe	C	From Leg	4.000		0.000	128.000	1" Ice 3.401	3.401	0.095
			0.000				2" Ice 4.396	4.396	0.150
			0.000				No Ice 1.900	1.900	0.061
			0.000				1/2" Ice 2.728	2.728	0.075
Platform Mount [LP 303-1_HR-1]	C	None	4.000		0.000	128.000	1" Ice 3.401	3.401	0.095
			0.000				2" Ice 4.396	4.396	0.150
			0.000				No Ice 17.090	17.090	1.495
			0.000				1/2" Ice 21.470	21.470	1.881
* (2) AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000		0.000	114.000	1" Ice 4.480	3.840	0.320
			0.000				2" Ice 5.240	4.580	0.485
			0.000				No Ice 3.760	3.150	0.194
			0.000				1/2" Ice 4.120	3.490	0.252
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000		0.000	114.000	1" Ice 4.480	3.840	0.320
			0.000				2" Ice 5.240	4.580	0.485
			0.000				No Ice 3.760	3.150	0.194
			0.000				1/2" Ice 4.120	3.490	0.252
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000		0.000	114.000	1" Ice 4.480	3.840	0.320
			0.000				2" Ice 5.240	4.580	0.485
			0.000				No Ice 3.760	3.150	0.194
			0.000				1/2" Ice 4.120	3.490	0.252
(2) APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000		0.000	114.000	1" Ice 16.230	8.250	0.458
			0.000				2" Ice 17.820	9.670	0.788
			0.000				No Ice 14.690	6.870	0.186
			0.000				1/2" Ice 15.460	7.550	0.315
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000		0.000	114.000	1" Ice 16.230	8.250	0.458
			0.000				2" Ice 17.820	9.670	0.788
			0.000				No Ice 14.690	6.870	0.186
			0.000				1/2" Ice 15.460	7.550	0.315
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000		0.000	114.000	1" Ice 16.230	8.250	0.458
			0.000				2" Ice 17.820	9.670	0.788
			0.000				No Ice 14.690	6.870	0.186
			0.000				1/2" Ice 15.460	7.550	0.315
(3) RADIO 4449 B12/B71	A	From Leg	4.000		0.000	114.000	1" Ice 1.978	1.447	0.109
			0.000				2" Ice 2.336	1.762	0.155
			0.000				No Ice 1.650	1.163	0.074
			0.000				1/2" Ice 1.810	1.301	0.090
(2) RADIO 4449 B12/B71	B	From Leg	4.000		0.000	114.000	1" Ice 1.978	1.447	0.109
			0.000				2" Ice 2.336	1.762	0.155
			0.000				No Ice 1.650	1.163	0.074
			0.000				1/2" Ice 1.810	1.301	0.090
(3) RADIO 4449 B12/B71	C	From Leg	4.000		0.000	114.000	1" Ice 1.978	1.447	0.109
			0.000				2" Ice 2.336	1.762	0.155
			0.000				No Ice 1.650	1.163	0.074
			0.000				1/2" Ice 1.810	1.301	0.090
6' x 2" Mount Pipe	A	From Leg	4.000		0.000	114.000	1" Ice 2.294	2.294	0.048
			0.000				2" Ice 3.060	3.060	0.090
			0.000				No Ice 1.425	1.425	0.022
			0.000				1/2" Ice 1.925	1.925	0.033
12.5' x 2.375" Horizontal Mount Pipe	A	From Leg	4.000		0.000	114.000	1" Ice 5.550	0.100	0.981
			0.000				2" Ice 8.060	0.240	0.183
			0.000				No Ice 4.560	4.560	0.245
			0.000				1/2" Ice 6.390	6.390	0.311
Miscellaneous [NA 507-1]	C	None			0.000	114.000			

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 26 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
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tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 27 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	148 - 143	Pole	Max Tension	26	0.000	0.000	-0.000
			Max. Compression	26	-12.609	0.013	0.063
			Max. Mx	20	-5.709	35.138	0.035
			Max. My	2	-5.708	0.023	35.140
			Max. Vy	20	-5.709	35.138	0.035
			Max. Vx	2	-5.709	0.023	35.140
			Max. Torque	20			0.006
L2	143 - 138	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-13.286	0.026	0.129
			Max. Mx	20	-6.103	64.500	0.070
			Max. My	2	-6.103	0.046	64.504
			Max. Vy	20	-6.038	64.500	0.070
			Max. Vx	2	-6.038	0.046	64.504
			Max. Torque	20			0.006
L3	138 - 133	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-23.407	0.004	-0.444
			Max. Mx	20	-10.314	120.462	1.011
			Max. My	14	-10.333	-0.768	-118.999
			Max. Vy	20	-10.198	120.462	1.011
			Max. Vx	2	-10.022	1.160	118.981
			Max. Torque	24			0.530
L4	133 - 128	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.259	-0.116	-0.253
			Max. Mx	20	-10.791	172.233	1.730
			Max. My	2	-10.804	1.807	169.923
			Max. Vy	20	-10.528	172.233	1.730
			Max. Vx	2	-10.352	1.807	169.923
			Max. Torque	24			0.529
L5	128 - 123	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.639	-0.241	0.866
			Max. Mx	20	-14.958	249.819	2.550
			Max. My	2	-14.974	2.467	246.519
			Max. Vy	20	-15.687	249.819	2.550
			Max. Vx	2	-15.452	2.467	246.519
			Max. Torque	18			-0.683
L6	123 - 116.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.136	-0.312	0.999
			Max. Mx	20	-15.257	293.163	2.959
			Max. My	2	-15.272	2.828	289.245
			Max. Vy	20	-15.861	293.163	2.959
			Max. Vx	2	-15.626	2.828	289.245
			Max. Torque	18			-0.683
L7	116.5 - 115.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.615	-0.440	1.244
			Max. Mx	20	-16.157	373.327	3.702
			Max. My	2	-16.171	3.485	368.289
			Max. Vy	20	-16.220	373.327	3.702
			Max. Vx	2	-15.986	3.485	368.289
			Max. Torque	18			-0.683
L8	115.25 - 110.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.667	0.080	11.669
			Max. Mx	20	-22.637	472.159	7.508
			Max. My	2	-22.620	4.521	470.314
			Max. Vy	20	-20.955	472.159	7.508
			Max. Vx	14	21.159	-3.582	-463.521
			Max. Torque	21			-2.784
L9	110.25 - 105.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.730	-0.057	11.947
			Max. Mx	20	-23.380	577.538	8.312

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 28 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L10	105.25 - 100.25	Pole	Max. My	2	-23.363	5.158	576.639
			Max. Vy	20	-21.229	577.538	8.312
			Max. Vx	14	21.435	-4.275	-569.934
			Max. Torque	21			-2.783
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.828	-0.197	12.204
			Max. Mx	20	-24.149	684.248	9.108
			Max. My	2	-24.133	5.789	684.298
			Max. Vy	20	-21.491	684.248	9.108
			Max. Vx	14	21.698	-4.967	-677.685
L11	100.25 - 98.75	Pole	Max. Torque	21			-2.782
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.205	-0.240	12.278
			Max. Mx	20	-24.379	716.512	9.346
			Max. My	2	-24.363	5.977	716.847
			Max. Vy	20	-21.574	716.512	9.346
			Max. Vx	14	21.781	-5.174	-710.263
			Max. Torque	21			-2.781
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.268	-0.247	12.291
L12	98.75 - 98.5	Pole	Max. Mx	20	-24.433	721.901	9.385
			Max. My	2	-24.417	6.009	722.283
			Max. Vy	20	-21.570	721.901	9.385
			Max. Vx	14	21.781	-5.209	-715.704
			Max. Torque	21			-2.780
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.349	-0.254	12.303
			Max. Mx	20	-24.490	727.293	9.424
			Max. My	2	-24.474	6.041	727.723
			Max. Vy	20	-21.585	727.293	9.424
L13	98.5 - 98.25	Pole	Max. Vx	14	21.796	-5.243	-721.149
			Max. Torque	21			-2.780
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.981	-0.398	12.538
			Max. Mx	20	-25.600	835.985	10.213
			Max. My	2	-25.584	6.666	837.368
			Max. Vy	20	-21.916	835.985	10.213
			Max. Vx	14	22.124	-5.933	-830.890
			Max. Torque	21			-2.780
			Max Tension	1	0.000	0.000	0.000
L14	98.25 - 93.25	Pole	Max. Compression	26	-56.632	-0.545	12.767
			Max. Mx	20	-26.736	946.278	10.998
			Max. My	2	-26.721	7.289	948.616
			Max. Vy	20	-22.233	946.278	10.998
			Max. Vx	14	22.442	-6.624	-942.236
			Max. Torque	21			-2.779
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.801	-0.650	12.923
			Max. Mx	20	-27.543	1024.411	11.546
			Max. My	2	-27.529	7.723	1027.419
L15	93.25 - 88.25	Pole	Max. Vy	20	-22.450	1024.411	11.546
			Max. Vx	14	22.659	-7.107	-1021.108
			Max. Torque	21			-2.778
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.731	-0.801	13.142
			Max. Mx	20	-29.647	1137.595	12.329
			Max. My	2	-29.633	8.344	1141.562
			Max. Vy	20	-22.845	1137.595	12.329
			Max. Vx	14	23.055	-7.797	-1135.350
			Max. Torque	21			-2.778

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 29 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	79.75 - 74.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.776	-0.953	13.997
			Max. Mx	20	-31.051	1253.438	13.380
			Max. My	2	-31.040	8.962	1258.543
			Max. Vy	20	-23.304	1253.438	13.380
			Max. Vx	14	23.487	-8.488	-1251.848
			Max. Torque	21			-3.214
L19	74.75 - 69.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.629	-1.107	14.204
			Max. Mx	20	-32.391	1370.594	14.157
			Max. My	2	-32.380	9.578	1376.527
			Max. Vy	20	-23.597	1370.594	14.157
			Max. Vx	14	23.780	-9.179	-1369.932
			Max. Torque	21			-3.213
L20	69.75 - 66.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.776	-1.200	14.325
			Max. Mx	20	-33.205	1441.581	14.620
			Max. My	2	-33.195	9.945	1448.011
			Max. Vy	20	-23.768	1441.581	14.620
			Max. Vx	14	23.951	-9.592	-1441.476
			Max. Torque	21			-3.212
L21	66.75 - 66.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.886	-1.208	14.336
			Max. Mx	20	-33.294	1447.519	14.659
			Max. My	2	-33.284	9.977	1453.991
			Max. Vy	20	-23.774	1447.519	14.659
			Max. Vx	14	23.961	-9.627	-1447.462
			Max. Torque	21			-3.212
L22	66.5 - 61.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.093	-1.365	14.530
			Max. Mx	20	-34.925	1567.113	15.429
			Max. My	2	-34.916	10.586	1574.413
			Max. Vy	20	-24.093	1567.113	15.429
			Max. Vx	14	24.276	-10.315	-1567.985
			Max. Torque	21			-3.212
L23	61.5 - 56.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.319	-1.524	14.721
			Max. Mx	20	-36.583	1688.235	16.197
			Max. My	2	-36.574	11.194	1696.365
			Max. Vy	20	-24.394	1688.235	16.197
			Max. Vx	14	24.578	-11.003	-1690.038
			Max. Torque	21			-3.211
L24	56.5 - 51.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.563	-1.685	14.906
			Max. Mx	20	-38.261	1810.829	16.961
			Max. My	2	-38.253	11.798	1819.789
			Max. Vy	20	-24.683	1810.829	16.961
			Max. Vx	14	24.866	-11.690	-1813.564
			Max. Torque	21			-3.210
L25	51.5 - 46.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.826	-1.847	15.085
			Max. Mx	20	-39.960	1934.832	17.721
			Max. My	2	-39.953	12.398	1944.621
			Max. Vy	20	-24.959	1934.832	17.721
			Max. Vx	14	25.143	-12.375	-1938.498
			Max. Torque	21			-3.210
L26	46.5 - 39.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.514	-1.891	15.141
			Max. Mx	20	-40.472	1972.298	17.949
			Max. My	2	-40.465	12.578	1982.336
			Max. Vy	20	-25.044	1972.298	17.949

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	39.75 - 38.75	Pole	Max. Vx	14	25.227	-12.580	-1976.243
			Max. Torque	21			-3.209
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.629	-1.692	15.156
			Max. Mx	20	-44.424	2130.523	18.834
			Max. My	2	-44.417	13.605	2141.322
			Max. Vy	8	25.508	-2130.189	-8.050
L28	38.75 - 33.75	Pole	Max. Vx	14	25.703	-13.279	-2135.610
			Max. Torque	21			-3.116
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.100	-1.831	15.339
			Max. Mx	20	-46.325	2258.555	19.639
			Max. My	2	-46.319	14.251	2270.239
			Max. Vy	8	25.748	-2258.307	-8.623
L29	33.75 - 31.75	Pole	Max. Vx	14	25.943	-14.011	-2264.628
			Max. Torque	21			-3.116
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.094	-1.887	15.410
			Max. Mx	20	-47.094	2310.098	19.960
			Max. My	2	-47.088	14.508	2322.136
			Max. Vy	8	25.840	-2309.885	-8.851
L30	31.75 - 31.5	Pole	Max. Vx	14	26.034	-14.303	-2316.565
			Max. Torque	21			-3.115
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.219	-1.894	15.420
			Max. Mx	20	-47.196	2316.553	20.000
			Max. My	2	-47.191	14.540	2328.636
			Max. Vy	8	25.840	-2316.345	-8.880
L31	31.5 - 26.5	Pole	Max. Vx	14	26.038	-14.339	-2323.070
			Max. Torque	21			-3.115
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.715	-2.032	15.577
			Max. Mx	20	-49.127	2446.229	20.798
			Max. My	2	-49.122	15.179	2459.196
			Max. Vy	8	26.066	-2446.110	-9.449
L32	26.5 - 21.5	Pole	Max. Vx	14	26.260	-15.068	-2453.731
			Max. Torque	21			-3.115
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.225	-2.168	15.708
			Max. Mx	20	-51.086	2576.958	21.591
			Max. My	2	-51.083	15.813	2590.808
			Max. Vy	8	26.274	-2576.930	-10.016
L33	21.5 - 17.75	Pole	Max. Vx	14	26.468	-15.793	-2585.445
			Max. Torque	21			-3.115
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-91.169	-2.184	15.856
			Max. Mx	8	-52.570	-2675.723	-10.440
			Max. My	2	-52.567	16.286	2690.193
			Max. Vy	8	26.432	-2675.723	-10.440
L34	17.75 - 17.5	Pole	Max. Vx	14	26.625	-16.336	-2684.905
			Max. Torque	21			-3.114
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-91.317	-2.183	15.868
			Max. Mx	8	-52.694	-2682.330	-10.468
			Max. My	2	-52.691	16.317	2696.839
			Max. Vy	8	26.427	-2682.330	-10.468
L35	17.5 - 14.25	Pole	Max. Vx	14	26.622	-16.372	-2691.557
			Max. Torque	21			-3.114
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.359	-2.172	16.450
			Max. Mx	8	-54.273	-2768.560	-10.566

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 31 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	14.25 - 14	Pole	Max. My	2	-54.271	16.724	2783.814
			Max. Vy	8	26.634	-2768.560	-10.566
			Max. Vx	14	26.807	-16.840	-2778.059
			Max. Torque	21			-3.284
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.496	-2.171	16.461
			Max. Mx	8	-54.385	-2775.219	-10.594
			Max. My	2	-54.383	16.756	2790.507
			Max. Vy	8	26.633	-2775.219	-10.594
			Max. Vx	14	26.807	-16.876	-2784.756
L37	14 - 9	Pole	Max. Torque	21			-3.283
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.224	-2.159	16.688
			Max. Mx	8	-56.509	-2908.911	-11.156
			Max. My	2	-56.507	17.378	2924.879
			Max. Vy	8	26.845	-2908.911	-11.156
			Max. Vx	14	27.017	-17.594	-2919.233
			Max. Torque	21			-3.283
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-98.905	-2.156	16.972
L38	9 - 4	Pole	Max. Mx	8	-58.661	-3043.591	-11.715
			Max. My	2	-58.660	17.994	3060.234
			Max. Vy	8	27.041	-3043.591	-11.715
			Max. Vx	14	27.213	-18.308	-3054.693
			Max. Torque	21			-3.283
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-101.011	-2.163	17.177
			Max. Mx	8	-60.400	-3152.033	-12.161
			Max. My	2	-60.400	18.483	3169.212
			Max. Vy	8	27.195	-3152.033	-12.161
L39	4 - 0	Pole	Max. Vx	14	27.366	-18.877	-3163.757
			Max. Torque	21			-3.283
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-101.011	-2.163	17.177
			Max. Mx	8	-60.400	-3152.033	-12.161
			Max. My	2	-60.400	18.483	3169.212

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	101.011	-0.000	0.000
	Max. H _x	21	45.306	27.177	0.147
	Max. H _z	2	60.408	0.132	27.315
	Max. M _x	2	3169.212	0.132	27.315
	Max. M _z	8	3152.033	-27.177	-0.117
	Max. Torsion	9	3.255	-27.177	-0.117
	Min. Vert	19	45.306	23.446	-13.603
	Min. H _x	9	45.306	-27.177	-0.117
	Min. H _z	14	60.408	-0.132	-27.348
	Min. M _x	14	-3163.757	-0.132	-27.348
	Min. M _z	20	-3151.650	27.177	0.147
	Min. Torsion	21	-3.283	27.177	0.147

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	50.340	0.000	-0.000	-3.806	-0.162	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	60.408	-0.132	-27.315	-3169.212	18.482	-0.772
0.9 Dead+1.0 Wind 0 deg - No Ice	45.306	-0.132	-27.315	-3126.487	18.258	-0.766
1.2 Dead+1.0 Wind 30 deg - No Ice	60.408	13.456	-23.600	-2737.215	-1557.722	-2.186
0.9 Dead+1.0 Wind 30 deg - No Ice	45.306	13.456	-23.600	-2700.163	-1537.241	-2.185
1.2 Dead+1.0 Wind 60 deg - No Ice	60.408	23.456	-13.571	-1574.137	-2718.765	-3.113
0.9 Dead+1.0 Wind 60 deg - No Ice	45.306	23.456	-13.571	-1552.340	-2683.030	-3.118
1.2 Dead+1.0 Wind 90 deg - No Ice	60.408	27.177	0.117	12.161	-3152.033	-3.246
0.9 Dead+1.0 Wind 90 deg - No Ice	45.306	27.177	0.117	13.167	-3110.599	-3.255
1.2 Dead+1.0 Wind 120 deg - No Ice	60.408	23.578	13.831	1600.827	-2736.215	-2.303
0.9 Dead+1.0 Wind 120 deg - No Ice	45.306	23.578	13.831	1581.031	-2700.229	-2.313
1.2 Dead+1.0 Wind 150 deg - No Ice	60.408	13.692	23.766	2750.505	-1590.984	-0.911
0.9 Dead+1.0 Wind 150 deg - No Ice	45.306	13.692	23.766	2715.652	-1570.028	-0.920
1.2 Dead+1.0 Wind 180 deg - No Ice	60.408	0.132	27.348	3163.757	-18.877	0.743
0.9 Dead+1.0 Wind 180 deg - No Ice	45.306	0.132	27.348	3123.500	-18.561	0.738
1.2 Dead+1.0 Wind 210 deg - No Ice	60.408	-13.464	23.635	2731.897	1558.278	2.209
0.9 Dead+1.0 Wind 210 deg - No Ice	45.306	-13.464	23.635	2697.310	1537.879	2.208
1.2 Dead+1.0 Wind 240 deg - No Ice	60.408	-23.446	13.603	1568.517	2717.218	3.074
0.9 Dead+1.0 Wind 240 deg - No Ice	45.306	-23.446	13.603	1549.185	2681.588	3.079
1.2 Dead+1.0 Wind 270 deg - No Ice	60.408	-27.177	-0.147	-25.199	3151.650	3.274
0.9 Dead+1.0 Wind 270 deg - No Ice	45.306	-27.177	-0.147	-23.651	3110.306	3.283
1.2 Dead+1.0 Wind 300 deg - No Ice	60.408	-23.588	-13.799	-1606.457	2736.992	2.369
0.9 Dead+1.0 Wind 300 deg - No Ice	45.306	-23.588	-13.799	-1584.193	2701.079	2.380
1.2 Dead+1.0 Wind 330 deg - No Ice	60.408	-13.684	-23.732	-2755.831	1589.646	0.859
0.9 Dead+1.0 Wind 330 deg - No Ice	45.306	-13.684	-23.732	-2718.511	1568.790	0.869
1.2 Dead+1.0 Ice+1.0 Temp	101.011	0.000	-0.000	-17.177	-2.163	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	101.011	-0.025	-7.320	-884.877	1.386	-0.187
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	101.011	3.614	-6.329	-767.146	-429.977	-0.533
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	101.011	6.289	-3.644	-448.743	-747.199	-0.757
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	101.011	7.279	0.022	-14.131	-864.948	-0.784
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	101.011	6.312	3.695	421.182	-750.508	-0.555
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	101.011	3.659	6.362	737.046	-436.369	-0.214

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 33 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	101.011	0.025	7.327	851.183	-5.748	0.185
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	101.011	-3.616	6.337	733.482	425.831	0.536
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	101.011	-6.287	3.651	415.006	742.583	0.742
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	101.011	-7.279	-0.028	-21.264	860.589	0.786
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	101.011	-6.314	-3.688	-454.921	746.405	0.572
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	101.011	-3.657	-6.354	-770.713	431.793	0.210
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	50.340	-0.031	-6.431	-743.179	4.199	-0.179
Dead+Wind 30 deg - Service	50.340	3.168	-5.557	-642.257	-364.013	-0.519
Dead+Wind 60 deg - Service	50.340	5.523	-3.195	-370.552	-635.241	-0.743
Dead+Wind 90 deg - Service	50.340	6.399	0.027	0.025	-736.464	-0.774
Dead+Wind 120 deg - Service	50.340	5.552	3.257	371.167	-639.331	-0.546
Dead+Wind 150 deg - Service	50.340	3.224	5.596	639.754	-371.789	-0.213
Dead+Wind 180 deg - Service	50.340	0.031	6.439	736.286	-4.522	0.178
Dead+Wind 210 deg - Service	50.340	-3.170	5.565	635.395	363.915	0.522
Dead+Wind 240 deg - Service	50.340	-5.521	3.203	363.615	634.650	0.725
Dead+Wind 270 deg - Service	50.340	-6.399	-0.035	-8.696	736.142	0.775
Dead+Wind 300 deg - Service	50.340	-5.554	-3.249	-378.104	639.279	0.565
Dead+Wind 330 deg - Service	50.340	-3.222	-5.588	-646.617	371.243	0.209

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-50.340	0.000	0.000	50.340	0.000	0.000%
2	-0.132	-60.408	-27.315	0.132	60.408	27.315	0.000%
3	-0.132	-45.306	-27.315	0.132	45.306	27.315	0.000%
4	13.456	-60.408	-23.600	-13.456	60.408	23.600	0.000%
5	13.456	-45.306	-23.600	-13.456	45.306	23.600	0.000%
6	23.456	-60.408	-13.571	-23.456	60.408	13.571	0.000%
7	23.456	-45.306	-13.571	-23.456	45.306	13.571	0.000%
8	27.177	-60.408	0.117	-27.177	60.408	-0.117	0.000%
9	27.177	-45.306	0.117	-27.177	45.306	-0.117	0.000%
10	23.578	-60.408	13.831	-23.578	60.408	-13.831	0.000%
11	23.578	-45.306	13.831	-23.578	45.306	-13.831	0.000%
12	13.692	-60.408	23.766	-13.692	60.408	-23.766	0.000%
13	13.692	-45.306	23.766	-13.692	45.306	-23.766	0.000%
14	0.132	-60.408	27.348	-0.132	60.408	-27.348	0.000%
15	0.132	-45.306	27.348	-0.132	45.306	-27.348	0.000%
16	-13.464	-60.408	23.635	13.464	60.408	-23.635	0.000%
17	-13.464	-45.306	23.635	13.464	45.306	-23.635	0.000%
18	-23.446	-60.408	13.603	23.446	60.408	-13.603	0.000%
19	-23.446	-45.306	13.603	23.446	45.306	-13.603	0.000%
20	-27.177	-60.408	-0.147	27.177	60.408	0.147	0.000%
21	-27.177	-45.306	-0.147	27.177	45.306	0.147	0.000%
22	-23.588	-60.408	-13.799	23.588	60.408	13.799	0.000%
23	-23.588	-45.306	-13.799	23.588	45.306	13.799	0.000%
24	-13.684	-60.408	-23.732	13.684	60.408	23.732	0.000%
25	-13.684	-45.306	-23.732	13.684	45.306	23.732	0.000%
26	0.000	-101.011	0.000	-0.000	101.011	0.000	0.000%
27	-0.025	-101.011	-7.320	0.025	101.011	7.320	0.000%

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 34 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
28	3.614	-101.011	-6.329	-3.614	101.011	6.329	0.000%
29	6.289	-101.011	-3.644	-6.289	101.011	3.644	0.000%
30	7.279	-101.011	0.022	-7.279	101.011	-0.022	0.000%
31	6.312	-101.011	3.694	-6.312	101.011	-3.695	0.000%
32	3.659	-101.011	6.362	-3.659	101.011	-6.362	0.000%
33	0.025	-101.011	7.327	-0.025	101.011	-7.327	0.000%
34	-3.616	-101.011	6.337	3.616	101.011	-6.337	0.000%
35	-6.287	-101.011	3.651	6.287	101.011	-3.651	0.000%
36	-7.279	-101.011	-0.028	7.279	101.011	0.028	0.000%
37	-6.314	-101.011	-3.688	6.314	101.011	3.688	0.000%
38	-3.657	-101.011	-6.354	3.657	101.011	6.354	0.000%
39	-0.031	-50.340	-6.431	0.031	50.340	6.431	0.000%
40	3.168	-50.340	-5.557	-3.168	50.340	5.557	0.000%
41	5.523	-50.340	-3.195	-5.523	50.340	3.195	0.000%
42	6.399	-50.340	0.027	-6.399	50.340	-0.027	0.000%
43	5.552	-50.340	3.257	-5.552	50.340	-3.257	0.000%
44	3.224	-50.340	5.596	-3.224	50.340	-5.596	0.000%
45	0.031	-50.340	6.439	-0.031	50.340	-6.439	0.000%
46	-3.170	-50.340	5.565	3.170	50.340	-5.565	0.000%
47	-5.521	-50.340	3.203	5.521	50.340	-3.203	0.000%
48	-6.399	-50.340	-0.035	6.399	50.340	0.035	0.000%
49	-5.554	-50.340	-3.249	5.554	50.340	3.249	0.000%
50	-3.222	-50.340	-5.588	3.222	50.340	5.588	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.00000688
2	Yes	5	0.0000001	0.00053471
3	Yes	5	0.0000001	0.00025172
4	Yes	6	0.0000001	0.00073160
5	Yes	6	0.0000001	0.00025616
6	Yes	6	0.0000001	0.00080445
7	Yes	6	0.0000001	0.00028415
8	Yes	6	0.0000001	0.00007588
9	Yes	5	0.0000001	0.00059491
10	Yes	6	0.0000001	0.00075160
11	Yes	6	0.0000001	0.00026295
12	Yes	6	0.0000001	0.00079085
13	Yes	6	0.0000001	0.00027796
14	Yes	5	0.0000001	0.00027173
15	Yes	5	0.0000001	0.00010782
16	Yes	6	0.0000001	0.00078385
17	Yes	6	0.0000001	0.00027697
18	Yes	6	0.0000001	0.00071896
19	Yes	6	0.0000001	0.00025214
20	Yes	6	0.0000001	0.00009961
21	Yes	5	0.0000001	0.00077866
22	Yes	6	0.0000001	0.00081872
23	Yes	6	0.0000001	0.00028779
24	Yes	6	0.0000001	0.00077169
25	Yes	6	0.0000001	0.00026968
26	Yes	5	0.0000001	0.00024945
27	Yes	6	0.0000001	0.00094209
28	Yes	7	0.0000001	0.00014708

tnxTower

B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 35 of 43
Project	Date 19:26:05 02/13/21
Client Crown Castle	Designed by Suhas

29	Yes	7	0.00000001	0.00014777
30	Yes	6	0.00000001	0.00091396
31	Yes	7	0.00000001	0.00014005
32	Yes	7	0.00000001	0.00014030
33	Yes	6	0.00000001	0.00088145
34	Yes	7	0.00000001	0.00013832
35	Yes	7	0.00000001	0.00013771
36	Yes	6	0.00000001	0.00091023
37	Yes	7	0.00000001	0.00014850
38	Yes	7	0.00000001	0.00014824
39	Yes	4	0.00000001	0.00087579
40	Yes	5	0.00000001	0.00016610
41	Yes	5	0.00000001	0.00021082
42	Yes	5	0.00000001	0.00007835
43	Yes	5	0.00000001	0.00016692
44	Yes	5	0.00000001	0.00018806
45	Yes	4	0.00000001	0.00083851
46	Yes	5	0.00000001	0.00019416
47	Yes	5	0.00000001	0.00015900
48	Yes	5	0.00000001	0.00008208
49	Yes	5	0.00000001	0.00020953
50	Yes	5	0.00000001	0.00017919

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	18.920	50	1.175	0.003
L2	143 - 138	17.692	50	1.170	0.003
L3	138 - 133	16.473	50	1.158	0.003
L4	133 - 128	15.271	50	1.137	0.003
L5	128 - 123	14.095	50	1.109	0.004
L6	123 - 116.5	12.952	50	1.071	0.003
L7	120.25 - 115.25	12.343	50	1.047	0.003
L8	115.25 - 110.25	11.260	50	1.016	0.003
L9	110.25 - 105.25	10.224	50	0.961	0.003
L10	105.25 - 100.25	9.251	50	0.897	0.002
L11	100.25 - 98.75	8.347	50	0.827	0.002
L12	98.75 - 98.5	8.091	50	0.805	0.002
L13	98.5 - 98.25	8.049	50	0.802	0.002
L14	98.25 - 93.25	8.007	50	0.800	0.002
L15	93.25 - 88.25	7.193	50	0.755	0.002
L16	88.25 - 80.25	6.426	50	0.708	0.002
L17	84.75 - 79.75	5.920	50	0.674	0.001
L18	79.75 - 74.75	5.227	50	0.647	0.001
L19	74.75 - 69.75	4.574	50	0.599	0.001
L20	69.75 - 66.75	3.973	50	0.550	0.001
L21	66.75 - 66.5	3.637	50	0.520	0.001
L22	66.5 - 61.5	3.610	50	0.518	0.001
L23	61.5 - 56.5	3.089	50	0.477	0.001
L24	56.5 - 51.5	2.611	50	0.436	0.001
L25	51.5 - 46.5	2.176	50	0.394	0.001
L26	46.5 - 39.75	1.785	50	0.352	0.001
L27	45 - 38.75	1.676	50	0.340	0.001
L28	38.75 - 33.75	1.249	50	0.310	0.000
L29	33.75 - 31.75	0.946	50	0.269	0.000
L30	31.75 - 31.5	0.836	50	0.253	0.000
L31	31.5 - 26.5	0.823	50	0.251	0.000
L32	26.5 - 21.5	0.581	50	0.210	0.000

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 36 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L33	21.5 - 17.75	0.382	50	0.169	0.000
L34	17.75 - 17.5	0.262	50	0.139	0.000
L35	17.5 - 14.25	0.254	50	0.137	0.000
L36	14.25 - 14	0.169	50	0.114	0.000
L37	14 - 9	0.163	50	0.112	0.000
L38	9 - 4	0.067	50	0.072	0.000
L39	4 - 0	0.013	50	0.032	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.500	Top Hat	50	18.920	1.175	0.003	32618
149.000	800MHZ RRH	50	18.920	1.175	0.003	32618
148.000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	50	18.920	1.175	0.003	32618
138.000	LPA-80080/6CF w/ Mount Pipe	50	16.473	1.158	0.003	17918
128.000	HPA-65R-BUU-H8 w/ Mount Pipe	50	14.095	1.109	0.004	8698
114.000	SC2-W100AB	50	10.996	1.005	0.003	5837
79.000	PD1109E	50	5.126	0.642	0.001	7126
45.000	GPS_A	50	1.676	0.340	0.001	9328
16.000	GPS_A	50	0.213	0.127	0.000	7609

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	80.594	24	5.010	0.014
L2	143 - 138	75.370	24	4.986	0.014
L3	138 - 133	70.184	24	4.935	0.014
L4	133 - 128	65.070	24	4.847	0.015
L5	128 - 123	60.065	24	4.725	0.015
L6	123 - 116.5	55.207	24	4.565	0.014
L7	120.25 - 115.25	52.612	24	4.459	0.014
L8	115.25 - 110.25	48.007	24	4.328	0.014
L9	110.25 - 105.25	43.601	24	4.094	0.012
L10	105.25 - 100.25	39.458	24	3.825	0.011
L11	100.25 - 98.75	35.610	24	3.528	0.009
L12	98.75 - 98.5	34.518	24	3.435	0.008
L13	98.5 - 98.25	34.338	24	3.420	0.008
L14	98.25 - 93.25	34.160	24	3.411	0.008
L15	93.25 - 88.25	30.689	24	3.222	0.008
L16	88.25 - 80.25	27.422	24	3.021	0.007
L17	84.75 - 79.75	25.262	24	2.875	0.006
L18	79.75 - 74.75	22.307	24	2.763	0.006
L19	74.75 - 69.75	19.522	24	2.557	0.005
L20	69.75 - 66.75	16.957	24	2.346	0.005
L21	66.75 - 66.5	15.523	24	2.218	0.004
L22	66.5 - 61.5	15.408	24	2.209	0.004
L23	61.5 - 56.5	13.185	24	2.036	0.004

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 37 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L24	56.5 - 51.5	11.144	24	1.862	0.003
L25	51.5 - 46.5	9.288	24	1.684	0.003
L26	46.5 - 39.75	7.619	24	1.505	0.002
L27	45 - 38.75	7.155	24	1.450	0.002
L28	38.75 - 33.75	5.331	24	1.322	0.002
L29	33.75 - 31.75	4.036	24	1.150	0.002
L30	31.75 - 31.5	3.569	24	1.081	0.002
L31	31.5 - 26.5	3.513	24	1.073	0.002
L32	26.5 - 21.5	2.481	24	0.899	0.001
L33	21.5 - 17.75	1.632	24	0.722	0.001
L34	17.75 - 17.5	1.116	24	0.591	0.001
L35	17.5 - 14.25	1.085	24	0.584	0.001
L36	14.25 - 14	0.721	24	0.486	0.001
L37	14 - 9	0.696	24	0.477	0.001
L38	9 - 4	0.287	24	0.305	0.000
L39	4 - 0	0.056	24	0.135	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.500	Top Hat	24	80.594	5.010	0.015	7715
149.000	800MHZ RRH	24	80.594	5.010	0.015	7715
148.000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	24	80.594	5.010	0.015	7715
138.000	LPA-80080/6CF w/ Mount Pipe	24	70.184	4.935	0.015	4251
128.000	HPA-65R-BUU-H8 w/ Mount Pipe	24	60.065	4.725	0.015	2061
114.000	SC2-W100AB	24	46.884	4.280	0.014	1385
79.000	PD1109E	24	21.877	2.739	0.006	1680
45.000	GPS_A	24	7.155	1.450	0.002	2188
16.000	GPS_A	24	0.909	0.540	0.001	1783

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	148 - 143 (1)	TP24.87x24x0.219	5.000	0.000	0.0	17.116	-5.705	924.240	0.006
L2	143 - 138 (2)	TP25.74x24.87x0.219	5.000	0.000	0.0	17.719	-6.100	956.853	0.006
L3	138 - 133 (3)	TP26.61x25.74x0.219	5.000	0.000	0.0	18.323	-10.303	989.466	0.010
L4	133 - 128 (4)	TP27.479x26.61x0.219	5.000	0.000	0.0	18.927	-10.779	1022.080	0.011
L5	128 - 123 (5)	TP28.349x27.479x0.219	5.000	0.000	0.0	19.531	-14.944	1054.690	0.014
L6	123 - 116.5 (6)	TP29.48x28.349x0.219	6.500	0.000	0.0	19.864	-15.243	1072.630	0.014
L7	116.5 - 115.25 (7)	TP29.26x28.39x0.25	5.000	0.000	0.0	23.020	-16.143	1346.640	0.012
L8	115.25 - 110.25 (8)	TP30.13x29.26x0.25	5.000	0.000	0.0	23.710	-22.615	1387.030	0.016

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)</p>	<p>Page 38 of 43</p>
	<p>Project</p>	<p>Date 19:26:05 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by Suhas</p>

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L9	110.25 - 105.25 (9)	TP31x30.13x0.25	5.000	0.000	0.0	24.400	-23.359	1427.410	0.016
L10	105.25 - 100.25 (10)	TP31.87x31x0.25	5.000	0.000	0.0	25.090	-24.130	1467.800	0.016
L11	100.25 - 98.75 (11)	TP32.131x31.87x0.25	1.500	0.000	0.0	25.298	-24.360	1479.910	0.016
L12	98.75 - 98.5 (12)	TP32.175x32.131x0.25	0.250	0.000	0.0	25.332	-24.415	1481.930	0.016
L13	98.5 - 98.25 (13)	TP32.218x32.175x0.45	0.250	0.000	0.0	45.374	-24.471	2654.400	0.009
L14	98.25 - 93.25 (14)	TP33.088x32.218x0.444	5.000	0.000	0.0	45.978	-25.575	2689.730	0.010
L15	93.25 - 88.25 (15)	TP33.958x33.088x0.438	5.000	0.000	0.0	46.547	-26.712	2723.030	0.010
L16	88.25 - 80.25 (16)	TP35.35x33.958x0.438	8.000	0.000	0.0	47.393	-27.520	2772.500	0.010
L17	80.25 - 79.75 (17)	TP34.937x34.067x0.5	5.000	0.000	0.0	54.652	-29.625	3197.150	0.009
L18	79.75 - 74.75 (18)	TP35.808x34.937x0.488	5.000	0.000	0.0	54.652	-31.032	3197.130	0.010
L19	74.75 - 69.75 (19)	TP36.678x35.808x0.488	5.000	0.000	0.0	55.999	-32.373	3275.910	0.010
L20	69.75 - 66.75 (20)	TP37.2x36.678x0.488	3.000	0.000	0.0	56.806	-33.188	3323.180	0.010
L21	66.75 - 66.5 (21)	TP37.244x37.2x0.625	0.250	0.000	0.0	72.642	-33.277	4249.580	0.008
L22	66.5 - 61.5 (22)	TP38.114x37.244x0.613	5.000	0.000	0.0	72.906	-34.910	4264.990	0.008
L23	61.5 - 56.5 (23)	TP38.984x38.114x0.613	5.000	0.000	0.0	74.598	-36.568	4363.970	0.008
L24	56.5 - 51.5 (24)	TP39.855x38.984x0.6	5.000	0.000	0.0	74.757	-38.248	4373.270	0.009
L25	51.5 - 46.5 (25)	TP40.725x39.855x0.6	5.000	0.000	0.0	76.414	-39.949	4470.230	0.009
L26	46.5 - 39.75 (26)	TP41.9x40.725x0.588	6.750	0.000	0.0	75.332	-40.461	4406.940	0.009
L27	39.75 - 38.75 (27)	TP41.448x40.361x0.65	6.250	0.000	0.0	84.171	-44.413	4924.030	0.009
L28	38.75 - 33.75 (28)	TP42.318x41.448x0.65	5.000	0.000	0.0	85.966	-46.316	5029.010	0.009
L29	33.75 - 31.75 (29)	TP42.666x42.318x0.65	2.000	0.000	0.0	86.684	-47.085	5071.010	0.009
L30	31.75 - 31.5 (30)	TP42.71x42.666x0.65	0.250	0.000	0.0	86.774	-47.187	5076.260	0.009
L31	31.5 - 26.5 (31)	TP43.58x42.71x0.638	5.000	0.000	0.0	86.890	-49.119	5083.080	0.010
L32	26.5 - 21.5 (32)	TP44.45x43.58x0.625	5.000	0.000	0.0	86.937	-51.080	5085.810	0.010
L33	21.5 - 17.75 (33)	TP45.102x44.45x0.625	3.750	0.000	0.0	88.231	-52.565	5161.520	0.010
L34	17.75 - 17.5 (34)	TP45.145x45.102x0.725	0.250	0.000	0.0	102.218	-52.689	5979.760	0.009
L35	17.5 - 14.25 (35)	TP45.711x45.145x0.725	3.250	0.000	0.0	103.519	-54.269	6055.870	0.009
L36	14.25 - 14 (36)	TP45.754x45.711x0.638	0.250	0.000	0.0	91.291	-54.381	5340.500	0.010
L37	14 - 9 (37)	TP46.624x45.754x0.625	5.000	0.000	0.0	91.251	-56.506	5338.180	0.011
L38	9 - 4 (38)	TP47.494x46.624x0.625	5.000	0.000	0.0	92.977	-58.660	5439.130	0.011
L39	4 - 0 (39)	TP48.19x47.494x0.625	4.000	0.000	0.0	94.357	-60.400	5519.890	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} kip-ft	ϕM_{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	148 - 143 (1)	TP24.87x24x0.219	35.156	574.482	0.061	0.000	574.482	0.000
L2	143 - 138 (2)	TP25.74x24.87x0.219	64.537	609.819	0.106	0.000	609.819	0.000
L3	138 - 133 (3)	TP26.61x25.74x0.219	120.948	645.749	0.187	0.000	645.749	0.000
L4	133 - 128 (4)	TP27.479x26.61x0.219	173.097	682.230	0.254	0.000	682.230	0.000
L5	128 - 123 (5)	TP28.349x27.479x0.219	251.065	719.217	0.349	0.000	719.217	0.000
L6	123 - 116.5 (6)	TP29.48x28.349x0.219	294.582	739.762	0.398	0.000	739.762	0.000
L7	116.5 - 115.25 (7)	TP29.26x28.39x0.25	375.062	965.833	0.388	0.000	965.833	0.000
L8	115.25 - 110.25 (8)	TP30.13x29.26x0.25	476.131	1015.442	0.469	0.000	1015.442	0.000
L9	110.25 - 105.25 (9)	TP31x30.13x0.25	582.339	1065.692	0.546	0.000	1065.692	0.000
L10	105.25 - 100.25 (10)	TP31.87x31x0.25	689.876	1116.517	0.618	0.000	1116.517	0.000
L11	100.25 - 98.75 (11)	TP32.131x31.87x0.25	722.388	1131.875	0.638	0.000	1131.875	0.000
L12	98.75 - 98.5 (12)	TP32.175x32.131x0.25	727.818	1134.433	0.642	0.000	1134.433	0.000
L13	98.5 - 98.25 (13)	TP32.218x32.175x0.45	733.252	2188.483	0.335	0.000	2188.483	0.000
L14	98.25 - 93.25 (14)	TP33.088x32.218x0.444	842.967	2280.067	0.370	0.000	2280.067	0.000
L15	93.25 - 88.25 (15)	TP33.958x33.088x0.438	954.533	2371.525	0.402	0.000	2371.525	0.000
L16	88.25 - 80.25 (16)	TP35.35x33.958x0.438	1033.567	2459.042	0.420	0.000	2459.042	0.000
L17	80.25 - 79.75 (17)	TP34.937x34.067x0.5	1148.025	2856.458	0.402	0.000	2856.458	0.000
L18	79.75 - 74.75 (18)	TP35.808x34.937x0.488	1265.317	2931.742	0.432	0.000	2931.742	0.000
L19	74.75 - 69.75 (19)	TP36.678x35.808x0.488	1383.650	3079.017	0.449	0.000	3079.017	0.000
L20	69.75 - 66.75 (20)	TP37.2x36.678x0.488	1455.342	3169.108	0.459	0.000	3169.108	0.000
L21	66.75 - 66.5 (21)	TP37.244x37.2x0.625	1461.342	4027.125	0.363	0.000	4027.125	0.000
L22	66.5 - 61.5 (22)	TP38.114x37.244x0.613	1582.108	4142.167	0.382	0.000	4142.167	0.000
L23	61.5 - 56.5 (23)	TP38.984x38.114x0.613	1704.408	4338.242	0.393	0.000	4338.242	0.000
L24	56.5 - 51.5 (24)	TP39.855x38.984x0.6	1828.175	4450.475	0.411	0.000	4450.475	0.000
L25	51.5 - 46.5 (25)	TP40.725x39.855x0.6	1953.350	4651.525	0.420	0.000	4651.525	0.000
L26	46.5 - 39.75 (26)	TP41.9x40.725x0.588	1991.167	4618.817	0.431	0.000	4618.817	0.000
L27	39.75 - 38.75 (27)	TP41.448x40.361x0.65	2150.742	5204.700	0.413	0.000	5204.700	0.000
L28	38.75 - 33.75 (28)	TP42.318x41.448x0.65	2280.025	5430.792	0.420	0.000	5430.792	0.000
L29	33.75 - 31.75 (29)	TP42.666x42.318x0.65	2332.067	5522.567	0.422	0.000	5522.567	0.000
L30	31.75 - 31.5 (30)	TP42.71x42.666x0.65	2338.583	5534.092	0.423	0.000	5534.092	0.000
L31	31.5 - 26.5 (31)	TP43.58x42.71x0.638	2469.508	5661.183	0.436	0.000	5661.183	0.000
L32	26.5 - 21.5 (32)	TP44.45x43.58x0.625	2601.483	5783.941	0.450	0.000	5783.941	0.000
L33	21.5 - 17.75 (33)	TP45.102x44.45x0.625	2701.133	5958.667	0.453	0.000	5958.667	0.000
L34	17.75 - 17.5 (34)	TP45.145x45.102x0.725	2707.800	6879.100	0.394	0.000	6879.100	0.000
L35	17.5 - 14.25 (35)	TP45.711x45.145x0.725	2794.975	7056.767	0.396	0.000	7056.767	0.000
L36	14.25 - 14 (36)	TP45.754x45.711x0.638	2801.692	6253.500	0.448	0.000	6253.500	0.000
L37	14 - 9 (37)	TP46.624x45.754x0.625	2936.442	6376.450	0.461	0.000	6376.450	0.000

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 40 of 43
	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
L38	9 - 4 (38)	TP47.494x46.624x0.625	3072.167	6621.541	0.464	0.000	6621.541	0.000
L39	4 - 0 (39)	TP48.19x47.494x0.625	3181.442	6820.950	0.466	0.000	6820.950	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	148 - 143 (1)	TP24.87x24x0.219	5.713	277.272	0.021	0.004	598.580	0.000
L2	143 - 138 (2)	TP25.74x24.87x0.219	6.042	287.056	0.021	0.004	641.568	0.000
L3	138 - 133 (3)	TP26.61x25.74x0.219	10.271	296.840	0.035	0.438	686.048	0.001
L4	133 - 128 (4)	TP27.479x26.61x0.219	10.601	306.624	0.035	0.438	732.018	0.001
L5	128 - 123 (5)	TP28.349x27.479x0.219	15.748	316.408	0.050	0.205	779.477	0.000
L6	123 - 116.5 (6)	TP29.48x28.349x0.219	15.921	321.789	0.049	0.205	806.216	0.000
L7	116.5 - 115.25 (7)	TP29.26x28.39x0.25	16.281	403.993	0.040	0.205	1026.367	0.000
L8	115.25 - 110.25 (8)	TP30.13x29.26x0.25	21.119	416.108	0.051	2.018	1088.850	0.002
L9	110.25 - 105.25 (9)	TP31x30.13x0.25	21.393	428.223	0.050	2.017	1153.175	0.002
L10	105.25 - 100.25 (10)	TP31.87x31x0.25	21.654	440.339	0.049	2.016	1219.350	0.002
L11	100.25 - 98.75 (11)	TP32.131x31.87x0.25	21.736	443.973	0.049	2.015	1239.567	0.002
L12	98.75 - 98.5 (12)	TP32.175x32.131x0.25	21.741	444.579	0.049	2.015	1242.950	0.002
L13	98.5 - 98.25 (13)	TP32.218x32.175x0.45	21.763	796.319	0.027	2.015	2215.425	0.001
L14	98.25 - 93.25 (14)	TP33.088x32.218x0.444	22.165	806.918	0.027	0.747	2306.833	0.000
L15	93.25 - 88.25 (15)	TP33.958x33.088x0.438	22.482	816.908	0.028	0.747	2398.083	0.000
L16	88.25 - 80.25 (16)	TP35.35x33.958x0.438	22.699	831.749	0.027	0.746	2486.008	0.000
L17	80.25 - 79.75 (17)	TP34.937x34.067x0.5	23.096	959.144	0.024	0.746	2892.633	0.000
L18	79.75 - 74.75 (18)	TP35.808x34.937x0.488	23.533	959.139	0.025	0.964	2966.775	0.000
L19	74.75 - 69.75 (19)	TP36.678x35.808x0.488	23.825	982.773	0.024	0.964	3114.783	0.000
L20	69.75 - 66.75 (20)	TP37.2x36.678x0.488	23.995	996.954	0.024	0.964	3205.325	0.000
L21	66.75 - 66.5 (21)	TP37.244x37.2x0.625	24.009	1274.870	0.019	0.963	4088.375	0.000
L22	66.5 - 61.5 (22)	TP38.114x37.244x0.613	24.320	1279.500	0.019	0.963	4202.125	0.000
L23	61.5 - 56.5 (23)	TP38.984x38.114x0.613	24.621	1309.190	0.019	0.963	4399.433	0.000
L24	56.5 - 51.5 (24)	TP39.855x38.984x0.6	24.909	1311.980	0.019	0.963	4510.233	0.000
L25	51.5 - 46.5 (25)	TP40.725x39.855x0.6	25.185	1341.070	0.019	0.963	4712.450	0.000
L26	46.5 - 39.75 (26)	TP41.9x40.725x0.588	25.269	1322.080	0.019	0.963	4677.408	0.000
L27	39.75 - 38.75 (27)	TP41.448x40.361x0.65	25.750	1477.210	0.017	0.775	5277.958	0.000
L28	38.75 - 33.75 (28)	TP42.318x41.448x0.65	25.989	1508.700	0.017	0.775	5505.417	0.000
L29	33.75 - 31.75 (29)	TP42.666x42.318x0.65	26.080	1521.300	0.017	0.775	5597.750	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L30	31.75 - 31.5 (30)	TP42.71x42.666x0.65	26.082	1522.880	0.017	0.775	5609.341	0.000
L31	31.5 - 26.5 (31)	TP43.58x42.71x0.638	26.305	1524.920	0.017	0.775	5734.725	0.000
L32	26.5 - 21.5 (32)	TP44.45x43.58x0.625	26.512	1525.740	0.017	0.774	5855.700	0.000
L33	21.5 - 17.75 (33)	TP45.102x44.45x0.625	26.669	1548.460	0.017	0.774	6031.341	0.000
L34	17.75 - 17.5 (34)	TP45.145x45.102x0.725	26.665	1793.930	0.015	0.774	6978.591	0.000
L35	17.5 - 14.25 (35)	TP45.711x45.145x0.725	26.855	1816.760	0.015	0.859	7157.383	0.000
L36	14.25 - 14 (36)	TP45.754x45.711x0.638	26.854	1602.150	0.017	0.859	6330.267	0.000
L37	14 - 9 (37)	TP46.624x45.754x0.625	27.065	1601.450	0.017	0.859	6451.267	0.000
L38	9 - 4 (38)	TP47.494x46.624x0.625	27.259	1631.740	0.017	0.859	6697.575	0.000
L39	4 - 0 (39)	TP48.19x47.494x0.625	27.412	1655.970	0.017	0.859	6897.933	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	148 - 143 (1)	0.006	0.061	0.000	0.021	0.000	0.068	1.050	4.8.2 ✓
L2	143 - 138 (2)	0.006	0.106	0.000	0.021	0.000	0.113	1.050	4.8.2 ✓
L3	138 - 133 (3)	0.010	0.187	0.000	0.035	0.001	0.199	1.050	4.8.2 ✓
L4	133 - 128 (4)	0.011	0.254	0.000	0.035	0.001	0.266	1.050	4.8.2 ✓
L5	128 - 123 (5)	0.014	0.349	0.000	0.050	0.000	0.366	1.050	4.8.2 ✓
L6	123 - 116.5 (6)	0.014	0.398	0.000	0.049	0.000	0.415	1.050	4.8.2 ✓
L7	116.5 - 115.25 (7)	0.012	0.388	0.000	0.040	0.000	0.402	1.050	4.8.2 ✓
L8	115.25 - 110.25 (8)	0.016	0.469	0.000	0.051	0.002	0.488	1.050	4.8.2 ✓
L9	110.25 - 105.25 (9)	0.016	0.546	0.000	0.050	0.002	0.565	1.050	4.8.2 ✓
L10	105.25 - 100.25 (10)	0.016	0.618	0.000	0.049	0.002	0.637	1.050	4.8.2 ✓
L11	100.25 - 98.75 (11)	0.016	0.638	0.000	0.049	0.002	0.657	1.050	4.8.2 ✓
L12	98.75 - 98.5 (12)	0.016	0.642	0.000	0.049	0.002	0.661	1.050	4.8.2 ✓
L13	98.5 - 98.25 (13)	0.009	0.335	0.000	0.027	0.001	0.345	1.050	4.8.2 ✓
L14	98.25 - 93.25 (14)	0.010	0.370	0.000	0.027	0.000	0.380	1.050	4.8.2 ✓
L15	93.25 - 88.25 (15)	0.010	0.402	0.000	0.028	0.000	0.413	1.050	4.8.2 ✓

tnxTower

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Job 89028.018.01 - LONG EDDY / WRIGHT PROPERTY, CT (BU# 876373)	Page 42 of 43
Project	Date 19:26:05 02/13/21
Client Crown Castle	Designed by Sahas

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L16	88.25 - 80.25 (16)	0.010	0.420	0.000	0.027	0.000	0.431	1.050	4.8.2 ✓
L17	80.25 - 79.75 (17)	0.009	0.402	0.000	0.024	0.000	0.412	1.050	4.8.2 ✓
L18	79.75 - 74.75 (18)	0.010	0.432	0.000	0.025	0.000	0.442	1.050	4.8.2 ✓
L19	74.75 - 69.75 (19)	0.010	0.449	0.000	0.024	0.000	0.460	1.050	4.8.2 ✓
L20	69.75 - 66.75 (20)	0.010	0.459	0.000	0.024	0.000	0.470	1.050	4.8.2 ✓
L21	66.75 - 66.5 (21)	0.008	0.363	0.000	0.019	0.000	0.371	1.050	4.8.2 ✓
L22	66.5 - 61.5 (22)	0.008	0.382	0.000	0.019	0.000	0.391	1.050	4.8.2 ✓
L23	61.5 - 56.5 (23)	0.008	0.393	0.000	0.019	0.000	0.402	1.050	4.8.2 ✓
L24	56.5 - 51.5 (24)	0.009	0.411	0.000	0.019	0.000	0.420	1.050	4.8.2 ✓
L25	51.5 - 46.5 (25)	0.009	0.420	0.000	0.019	0.000	0.429	1.050	4.8.2 ✓
L26	46.5 - 39.75 (26)	0.009	0.431	0.000	0.019	0.000	0.441	1.050	4.8.2 ✓
L27	39.75 - 38.75 (27)	0.009	0.413	0.000	0.017	0.000	0.423	1.050	4.8.2 ✓
L28	38.75 - 33.75 (28)	0.009	0.420	0.000	0.017	0.000	0.429	1.050	4.8.2 ✓
L29	33.75 - 31.75 (29)	0.009	0.422	0.000	0.017	0.000	0.432	1.050	4.8.2 ✓
L30	31.75 - 31.5 (30)	0.009	0.423	0.000	0.017	0.000	0.432	1.050	4.8.2 ✓
L31	31.5 - 26.5 (31)	0.010	0.436	0.000	0.017	0.000	0.446	1.050	4.8.2 ✓
L32	26.5 - 21.5 (32)	0.010	0.450	0.000	0.017	0.000	0.460	1.050	4.8.2 ✓
L33	21.5 - 17.75 (33)	0.010	0.453	0.000	0.017	0.000	0.464	1.050	4.8.2 ✓
L34	17.75 - 17.5 (34)	0.009	0.394	0.000	0.015	0.000	0.403	1.050	4.8.2 ✓
L35	17.5 - 14.25 (35)	0.009	0.396	0.000	0.015	0.000	0.405	1.050	4.8.2 ✓
L36	14.25 - 14 (36)	0.010	0.448	0.000	0.017	0.000	0.458	1.050	4.8.2 ✓
L37	14 - 9 (37)	0.011	0.461	0.000	0.017	0.000	0.471	1.050	4.8.2 ✓
L38	9 - 4 (38)	0.011	0.464	0.000	0.017	0.000	0.475	1.050	4.8.2 ✓
L39	4 - 0 (39)	0.011	0.466	0.000	0.017	0.000	0.478	1.050	4.8.2 ✓

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	Project	Date 19:26:05 02/13/21
	Client Crown Castle	Designed by Suhas

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	148 - 143	Pole	TP24.87x24x0.219	1	-5.705	--	**	**	
L2	143 - 138	Pole	TP25.74x24.87x0.219	2	-6.100	--	**	**	
L3	138 - 133	Pole	TP26.61x25.74x0.219	3	-10.303	--	**	**	
L4	133 - 128	Pole	TP27.479x26.61x0.219	4	-10.779	--	**	**	
L5	128 - 123	Pole	TP28.349x27.479x0.219	5	-14.944	--	**	**	
L6	123 - 116.5	Pole	TP29.48x28.349x0.219	6	-15.243	--	**	**	
L7	116.5 - 115.25	Pole	TP29.26x28.39x0.25	7	-16.143	--	**	**	
L8	115.25 - 110.25	Pole	TP30.13x29.26x0.25	8	-22.615	--	**	**	
L9	110.25 - 105.25	Pole	TP31x30.13x0.25	9	-23.359	--	**	**	
L10	105.25 - 100.25	Pole	TP31.87x31x0.25	10	-24.130	--	**	**	
L11	100.25 - 98.75	Pole	TP32.131x31.87x0.25	11	-24.360	--	**	**	
L12	98.75 - 98.5	Pole	TP32.175x32.131x0.25	12	-24.415	--	**	**	
L13	98.5 - 98.25	Pole	TP32.218x32.175x0.45	13	-24.471	--	**	**	
L14	98.25 - 93.25	Pole	TP33.088x32.218x0.444	14	-25.575	--	**	**	
L15	93.25 - 88.25	Pole	TP33.958x33.088x0.438	15	-26.712	--	**	**	
L16	88.25 - 80.25	Pole	TP35.35x33.958x0.438	16	-27.520	--	**	**	
L17	80.25 - 79.75	Pole	TP34.937x34.067x0.5	17	-29.625	--	**	**	
L18	79.75 - 74.75	Pole	TP35.808x34.937x0.488	18	-31.032	--	**	**	
L19	74.75 - 69.75	Pole	TP36.678x35.808x0.488	19	-32.373	--	**	**	
L20	69.75 - 66.75	Pole	TP37.2x36.678x0.488	20	-33.188	--	**	**	
L21	66.75 - 66.5	Pole	TP37.244x37.2x0.625	21	-33.277	--	**	**	
L22	66.5 - 61.5	Pole	TP38.114x37.244x0.613	22	-34.910	--	**	**	
L23	61.5 - 56.5	Pole	TP38.984x38.114x0.613	23	-36.568	--	**	**	
L24	56.5 - 51.5	Pole	TP39.855x38.984x0.6	24	-38.248	--	**	**	
L25	51.5 - 46.5	Pole	TP40.725x39.855x0.6	25	-39.949	--	**	**	
L26	46.5 - 39.75	Pole	TP41.9x40.725x0.588	26	-40.461	--	**	**	
L27	39.75 - 38.75	Pole	TP41.448x40.361x0.65	27	-44.413	--	**	**	
L28	38.75 - 33.75	Pole	TP42.318x41.448x0.65	28	-46.316	--	**	**	
L29	33.75 - 31.75	Pole	TP42.666x42.318x0.65	29	-47.085	--	**	**	
L30	31.75 - 31.5	Pole	TP42.71x42.666x0.65	30	-47.187	--	**	**	
L31	31.5 - 26.5	Pole	TP43.58x42.71x0.638	31	-49.119	--	**	**	
L32	26.5 - 21.5	Pole	TP44.45x43.58x0.625	32	-51.080	--	**	**	
L33	21.5 - 17.75	Pole	TP45.102x44.45x0.625	33	-52.565	--	**	**	
L34	17.75 - 17.5	Pole	TP45.145x45.102x0.725	34	-52.689	--	**	**	
L35	17.5 - 14.25	Pole	TP45.711x45.145x0.725	35	-54.269	--	**	**	
L36	14.25 - 14	Pole	TP45.754x45.711x0.638	36	-54.381	--	**	**	
L37	14 - 9	Pole	TP46.624x45.754x0.625	37	-56.506	--	**	**	
L38	9 - 4	Pole	TP47.494x46.624x0.625	38	-58.660	--	**	**	
L39	4 - 0	Pole	TP48.19x47.494x0.625	39	-60.400	--	**	**	
							Summary		
							Pole (L12)	**	**
							RATING =	**	**

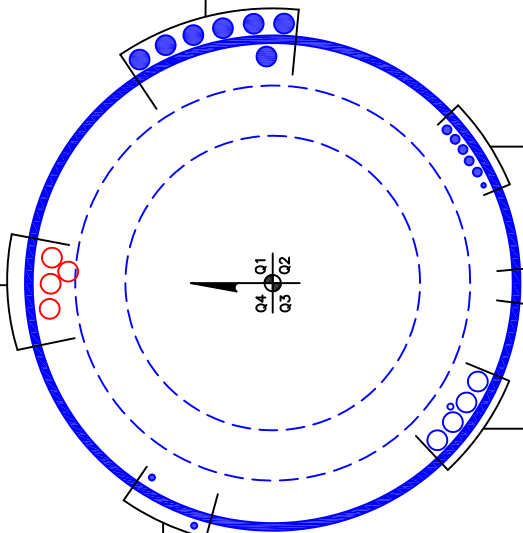
** Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C

APPENDIX B
BASE LEVEL DRAWING

(OTHER CONSIDERED EQUIPMENT)
(7) 1-5/8" TO 138 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(4) 1-5/8" TO 148 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 79 FT LEVEL
(1) 1/2" TO 45 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 128 FT LEVEL
(5) 3/4" TO 128 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 16 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 114 FT LEVEL
(4) 1-5/8" TO 114 FT LEVEL

BUSINESS UNIT: 876373

APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 876373
Work Order: 1919046

Pole Geometry

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	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	148	31.5	3.75	18	24	29.48	0.21875	Auto	A607-60
2	120.25	40	4.5	18	28.39	35.35	0.25	Auto	A607-65
3	84.75	45	5.25	18	34.07	41.9	0.3125	Auto	A607-65
4	45	45	0	18	40.36	48.19	0.375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	17.75	plate	CCI-SFP-065125	2				E			E											
2	0	31.75	plate	CCI-SFP-085125	2												E						E
3	14.25	31.75	plate	CCI-SFP-085125	1						E												
4	31.75	66.75	plate	CCI-SFP-085125	3						E						E						E
5	66.75	98.5	plate	CCI-SFP-060100	2						E						E						
6	66.75	98.75	plate	CCI-SFP-060100	1																		E
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
2	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.000	9.063	1.1875	A572-65
3	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.000	9.063	1.1875	A572-65
4	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.000	9.063	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	148 - 143	5		18	24.000	24.870	0.21875	A607-60	1.000
2	143 - 138	5		18	24.870	25.740	0.21875	A607-60	1.000
3	138 - 133	5		18	25.740	26.610	0.21875	A607-60	1.000
4	133 - 128	5		18	26.610	27.479	0.21875	A607-60	1.000
5	128 - 123	5		18	27.479	28.349	0.21875	A607-60	1.000
6	123 - 120.25	6.5	3.75	18	28.349	29.480	0.21875	A607-60	1.000
7	120.25 - 115.25	5		18	28.390	29.260	0.25	A607-65	1.000
8	115.25 - 110.25	5		18	29.260	30.130	0.25	A607-65	1.000
9	110.25 - 105.25	5		18	30.130	31.000	0.25	A607-65	1.000
10	105.25 - 100.25	5		18	31.000	31.870	0.25	A607-65	1.000
11	100.25 - 98.75	1.5		18	31.870	32.131	0.25	A607-65	1.000
12	98.75 - 98.5	0.25		18	32.131	32.175	0.25	A607-65	1.000
13	98.5 - 98.25	0.25		18	32.175	32.218	0.45	A607-65	0.956
14	98.25 - 93.25	5		18	32.218	33.088	0.44375	A607-65	0.958
15	93.25 - 88.25	5		18	33.088	33.958	0.4375	A607-65	0.961
16	88.25 - 84.75	8	4.5	18	33.958	35.350	0.4375	A607-65	0.954
17	84.75 - 79.75	5		18	34.067	34.937	0.5	A607-65	0.958
18	79.75 - 74.75	5		18	34.937	35.808	0.4875	A607-65	0.974
19	74.75 - 69.75	5		18	35.808	36.678	0.4875	A607-65	0.966
20	69.75 - 66.75	3		18	36.678	37.200	0.4875	A607-65	0.961
21	66.75 - 66.5	0.25		18	37.200	37.244	0.625	A607-65	0.943
22	66.5 - 61.5	5		18	37.244	38.114	0.6125	A607-65	0.952
23	61.5 - 56.5	5		18	38.114	38.984	0.6125	A607-65	0.941
24	56.5 - 51.5	5		18	38.984	39.855	0.6	A607-65	0.951
25	51.5 - 46.5	5		18	39.855	40.725	0.6	A607-65	0.942
26	46.5 - 45	6.75	5.25	18	40.725	41.900	0.5875	A607-65	0.959
27	45 - 38.75	6.25		18	40.361	41.448	0.65	A607-65	0.960
28	38.75 - 33.75	5		18	41.448	42.318	0.65	A607-65	0.952
29	33.75 - 31.75	2		18	42.318	42.666	0.65	A607-65	0.948
30	31.75 - 31.5	0.25		18	42.666	42.710	0.65	A607-65	0.948
31	31.5 - 26.5	5		18	42.710	43.580	0.6375	A607-65	0.959
32	26.5 - 21.5	5		18	43.580	44.450	0.625	A607-65	0.970
33	21.5 - 17.75	3.75		18	44.450	45.102	0.625	A607-65	0.965
34	17.75 - 17.5	0.25		18	45.102	45.145	0.725	A607-65	0.992
35	17.5 - 14.25	3.25		18	45.145	45.711	0.725	A607-65	0.986
36	14.25 - 14	0.25		18	45.711	45.754	0.6375	A607-65	1.002
37	14 - 9	5		18	45.754	46.624	0.625	A607-65	1.014
38	9 - 4	5		18	46.624	47.494	0.625	A607-65	1.007
39	4 - 0	4		18	47.494	48.190	0.625	A607-65	1.001

TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	148 - 143		5.71	35.16	5.71
2	143 - 138		6.10	64.54	6.04
3	138 - 133		10.30	120.95	10.27
4	133 - 128		10.78	173.10	10.60
5	128 - 123		14.94	251.06	15.75
6	123 - 120.25		15.24	294.58	15.92
7	120.25 - 115.25		16.14	375.06	16.28
8	115.25 - 110.25		22.62	476.13	21.12
9	110.25 - 105.25		23.36	582.34	21.39
10	105.25 - 100.25		24.13	689.88	21.65
11	100.25 - 98.75		24.36	722.39	21.74
12	98.75 - 98.5		24.41	727.82	21.74
13	98.5 - 98.25		24.47	733.25	21.76
14	98.25 - 93.25		25.58	842.97	22.17
15	93.25 - 88.25		26.71	954.54	22.48
16	88.25 - 84.75		27.52	1033.56	22.70
17	84.75 - 79.75		29.63	1148.03	23.10
18	79.75 - 74.75		31.03	1265.32	23.53
19	74.75 - 69.75		32.37	1383.65	23.82
20	69.75 - 66.75		33.19	1455.34	24.00
21	66.75 - 66.5		33.28	1461.34	24.01
22	66.5 - 61.5		34.91	1582.11	24.32
23	61.5 - 56.5		36.57	1704.41	24.62
24	56.5 - 51.5		38.25	1828.18	24.91
25	51.5 - 46.5		39.95	1953.35	25.18
26	46.5 - 45		40.46	1991.17	25.27
27	45 - 38.75		44.41	2150.74	25.75
28	38.75 - 33.75		46.32	2280.03	25.99
29	33.75 - 31.75		47.09	2332.07	26.08
30	31.75 - 31.5		47.19	2338.59	26.08
31	31.5 - 26.5		49.12	2469.51	26.31
32	26.5 - 21.5		51.08	2601.48	26.51
33	21.5 - 17.75		52.57	2701.13	26.67
34	17.75 - 17.5		52.69	2707.80	26.66
35	17.5 - 14.25		54.27	2794.98	26.86
36	14.25 - 14		54.38	2801.69	26.85
37	14 - 9		56.51	2936.44	27.06
38	9 - 4		58.66	3072.17	27.26
39	4 - 0		60.40	3181.44	27.41

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
148 - 143	Pole	TP24.87x24x0.2188	Pole	6.3%	Pass
143 - 138	Pole	TP25.74x24.87x0.2188	Pole	10.6%	Pass
138 - 133	Pole	TP26.61x25.74x0.2188	Pole	18.7%	Pass
133 - 128	Pole	TP27.479x26.61x0.2188	Pole	25.0%	Pass
128 - 123	Pole	TP28.349x27.479x0.2188	Pole	34.5%	Pass
123 - 120.25	Pole	TP29.48x28.349x0.2188	Pole	39.1%	Pass
120.25 - 115.25	Pole	TP29.26x28.39x0.25	Pole	38.0%	Pass
115.25 - 110.25	Pole	TP30.13x29.26x0.25	Pole	46.0%	Pass
110.25 - 105.25	Pole	TP31x30.13x0.25	Pole	53.4%	Pass
105.25 - 100.25	Pole	TP31.87x31x0.25	Pole	60.3%	Pass
100.25 - 98.75	Pole	TP32.131x31.87x0.25	Pole	62.2%	Pass
98.75 - 98.5	Pole	TP32.175x32.131x0.25	Pole	62.5%	Pass
98.5 - 98.25	Pole + Reinf.	TP32.218x32.175x0.45	Reinf. 5 Tension Rupture	51.6%	Pass
98.25 - 93.25	Pole + Reinf.	TP33.088x32.218x0.4438	Reinf. 5 Tension Rupture	56.8%	Pass
93.25 - 88.25	Pole + Reinf.	TP33.958x33.088x0.4375	Reinf. 5 Tension Rupture	61.7%	Pass
88.25 - 84.75	Pole + Reinf.	TP35.35x33.958x0.4375	Reinf. 5 Tension Rupture	64.9%	Pass
84.75 - 79.75	Pole + Reinf.	TP34.937x34.067x0.5	Reinf. 5 Tension Rupture	61.9%	Pass
79.75 - 74.75	Pole + Reinf.	TP35.808x34.937x0.4875	Reinf. 5 Tension Rupture	65.5%	Pass
74.75 - 69.75	Pole + Reinf.	TP36.678x35.808x0.4875	Reinf. 5 Tension Rupture	68.8%	Pass
69.75 - 66.75	Pole + Reinf.	TP37.2x36.678x0.4875	Reinf. 5 Tension Rupture	70.6%	Pass
66.75 - 66.5	Pole + Reinf.	TP37.244x37.2x0.625	Reinf. 4 Bolt Shear	53.9%	Pass
66.5 - 61.5	Pole + Reinf.	TP38.114x37.244x0.6125	Reinf. 4 Compression	54.2%	Pass
61.5 - 56.5	Pole + Reinf.	TP38.984x38.114x0.6125	Reinf. 4 Compression	56.4%	Pass
56.5 - 51.5	Pole + Reinf.	TP39.855x38.984x0.6	Reinf. 4 Compression	58.5%	Pass
51.5 - 46.5	Pole + Reinf.	TP40.725x39.855x0.6	Reinf. 4 Compression	60.5%	Pass
46.5 - 45	Pole + Reinf.	TP41.9x40.725x0.5875	Reinf. 4 Compression	61.0%	Pass
45 - 38.75	Pole + Reinf.	TP41.448x40.361x0.65	Reinf. 4 Compression	58.6%	Pass
38.75 - 33.75	Pole + Reinf.	TP42.318x41.448x0.65	Reinf. 4 Compression	60.1%	Pass
33.75 - 31.75	Pole + Reinf.	TP42.666x42.318x0.65	Reinf. 4 Bolt Shear	63.1%	Pass
31.75 - 31.5	Pole + Reinf.	TP42.71x42.666x0.65	Reinf. 2 Bolt Shear	63.1%	Pass
31.5 - 26.5	Pole + Reinf.	TP43.58x42.71x0.6375	Reinf. 2 Compression	62.1%	Pass
26.5 - 21.5	Pole + Reinf.	TP44.45x43.58x0.625	Reinf. 2 Compression	63.4%	Pass
21.5 - 17.75	Pole + Reinf.	TP45.102x44.45x0.625	Reinf. 2 Compression	64.3%	Pass
17.75 - 17.5	Pole + Reinf.	TP45.145x45.102x0.725	Reinf. 2 Compression	60.2%	Pass
17.5 - 14.25	Pole + Reinf.	TP45.711x45.145x0.725	Reinf. 2 Compression	61.0%	Pass
14.25 - 14	Pole + Reinf.	TP45.754x45.711x0.6375	Reinf. 1 Tension Rupture	65.8%	Pass
14 - 9	Pole + Reinf.	TP46.624x45.754x0.625	Reinf. 1 Tension Rupture	66.9%	Pass
9 - 4	Pole + Reinf.	TP47.494x46.624x0.625	Reinf. 1 Tension Rupture	68.0%	Pass
4 - 0	Pole + Reinf.	TP48.19x47.494x0.625	Reinf. 1 Tension Rupture	68.8%	Pass
				Summary	
			Pole	62.5%	Pass
			Reinforcement	70.6%	Pass
			Overall	70.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*						
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6
148 - 143	1314	n/a	1314	17.11	n/a	17.11	6.3%						
143 - 138	1458	n/a	1458	17.72	n/a	17.72	10.6%						
138 - 133	1612	n/a	1612	18.32	n/a	18.32	18.7%						
133 - 128	1776	n/a	1776	18.93	n/a	18.93	25.0%						
128 - 123	1952	n/a	1952	19.53	n/a	19.53	34.5%						
123 - 120.25	2053	n/a	2053	19.86	n/a	19.86	39.1%						
120.25 - 115.25	2447	n/a	2447	23.02	n/a	23.02	38.0%						
115.25 - 110.25	2673	n/a	2673	23.71	n/a	23.71	46.0%						
110.25 - 105.25	2914	n/a	2914	24.40	n/a	24.40	53.4%						
105.25 - 100.25	3168	n/a	3168	25.09	n/a	25.09	60.3%						
100.25 - 98.75	3247	n/a	3247	25.30	n/a	25.30	62.2%						
98.75 - 98.5	3261	n/a	3261	25.33	n/a	25.33	62.5%						
98.5 - 98.25	3274	2510	5784	25.37	18.00	43.37	35.2%					51.6%	51.6%
98.25 - 93.25	3549	2642	6191	26.06	18.00	44.06	39.1%					56.8%	56.8%
93.25 - 88.25	3838	2777	6616	26.75	18.00	44.75	42.9%					61.7%	61.7%
88.25 - 84.75	4050	2874	6924	27.23	18.00	45.23	45.4%					64.9%	64.9%
84.75 - 79.75	5200	2934	8134	34.34	18.00	52.34	40.4%					61.9%	61.9%
79.75 - 74.75	5602	3076	8678	35.21	18.00	53.21	43.0%					65.5%	65.5%
74.75 - 69.75	6024	3222	9246	36.07	18.00	54.07	45.5%					68.8%	68.8%
69.75 - 66.75	6288	3311	9599	36.59	18.00	54.59	47.0%					70.6%	70.6%
66.75 - 66.5	6310	6002	12312	36.63	31.88	68.50	36.9%				53.9%		
66.5 - 61.5	6767	6272	13038	37.49	31.88	69.37	38.9%				54.2%		
61.5 - 56.5	7245	6548	13793	38.36	31.88	70.23	40.8%				56.4%		
56.5 - 51.5	7745	6830	14575	39.22	31.88	71.09	42.6%				58.5%		
51.5 - 46.5	8268	7118	15386	40.08	31.88	71.96	44.4%				60.5%		
46.5 - 45	8429	7206	15635	40.34	31.88	72.22	44.9%				61.0%		
45 - 38.75	10416	7362	17778	48.89	31.88	80.76	40.9%				58.6%		
38.75 - 33.75	11092	7661	18753	49.92	31.88	81.80	42.2%				60.1%		
33.75 - 31.75	11370	7782	19153	50.34	31.88	82.21	42.7%				63.1%		
31.75 - 31.5	11405	7798	19203	50.39	31.88	82.26	42.8%		63.1%	63.1%			
31.5 - 26.5	12123	8105	20229	51.42	31.88	83.30	44.0%		62.1%	62.1%			
26.5 - 21.5	12870	8419	21289	52.46	31.88	84.33	45.2%		63.4%	63.4%			
21.5 - 17.75	13450	8658	22109	53.23	31.88	85.11	46.1%		64.3%	64.3%			
17.75 - 17.5	13718	12037	25755	53.29	48.13	101.41	43.3%	50.3%	60.2%	44.9%			
17.5 - 14.25	14241	12332	26573	53.96	48.13	102.08	44.0%	50.9%	61.0%	47.3%			
14.25 - 14	14065	9296	23361	54.01	37.50	91.51	47.2%	65.8%	61.8%				
14 - 9	14889	9640	24528	55.05	37.50	92.55	48.3%	66.9%	62.9%				
9 - 4	15744	9989	25734	56.08	37.50	93.58	49.4%	68.0%	63.9%				
4 - 0	16452	10274	26726	56.91	37.50	94.41	50.2%	68.8%	67.2%				

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Base Plate Connection

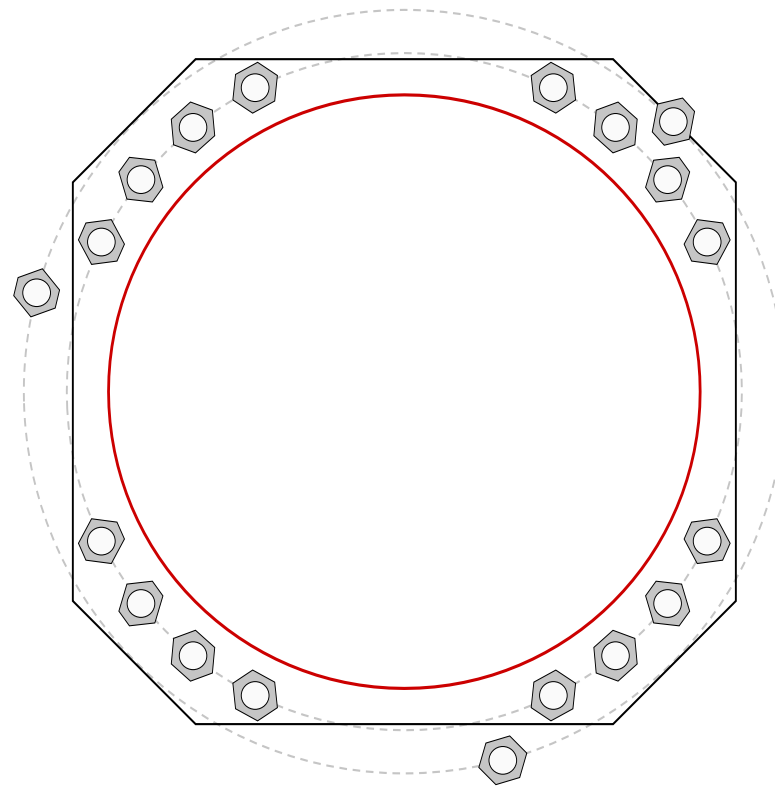


Site Info	
BU #	876373
Site Name	DDY / WRIGHTPROPER
Order #	538775 Rev# 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3181.44
Axial Force (kips)	60.40
Shear Force (kips)	27.41

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
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Anchor Rod Data
GROUP 1: (16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 55" BC Anchor Spacing: 6 in
GROUP 2: (3) 2-1/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 62" BC
Base Plate Data
54" W x 2.75" Plate (A572-55; $F_y=55$ ksi, $F_u=70$ ksi); Clip: 10 in
Stiffener Data
N/A
Pole Data
48.19" x 0.375" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			(units of kips, kip-in)
GROUP 1:			
$P_{u,c} = 143.79$	$\phi P_{n,c} = 268.39$	Stress Rating	
$V_u = 1.71$	$\phi V_n = 120.77$	51.0%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
GROUP 2:			
$P_{u,c} = 157.88$	$\phi P_{n,c} = 375.74$	Stress Rating	
$V_u = 0$	$\phi V_n = 169.08$	40.0%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
Base Plate Summary			
Max Stress (ksi):	27.33		(Flexural)
Allowable Stress (ksi):	49.5		
Stress Rating:	52.6%	Pass	

CCiplate

Elevation (ft) 0 (Base)

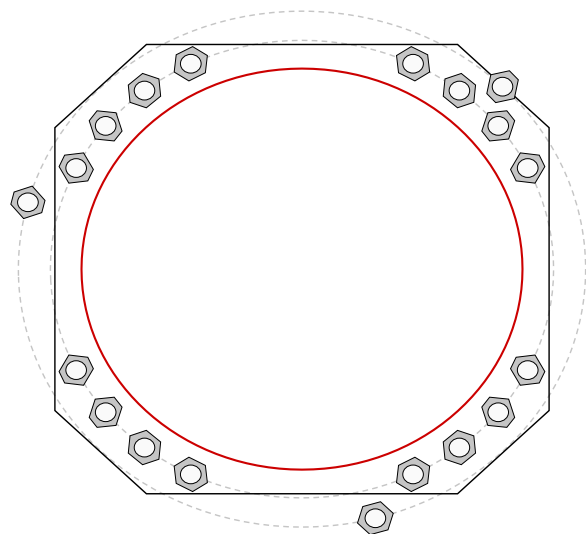
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η :	I_{ar} (in):	Thread Type	Area Override, in ²	Tension Only
1	1	26.211261	2.25	A615-75	55	0.5	0.75	N-Included		No
2	1	38.737087	2.25	A615-75	55	0.5	0.75	N-Included		No
3	1	51.262913	2.25	A615-75	55	0.5	0.75	N-Included		No
4	1	63.788739	2.25	A615-75	55	0.5	0.75	N-Included		No
5	1	116.21126	2.25	A615-75	55	0.5	0.75	N-Included		No
6	1	128.73709	2.25	A615-75	55	0.5	0.75	N-Included		No
7	1	141.26291	2.25	A615-75	55	0.5	0.75	N-Included		No
8	1	153.78874	2.25	A615-75	55	0.5	0.75	N-Included		No
9	1	206.21126	2.25	A615-75	55	0.5	0.75	N-Included		No
10	1	218.73709	2.25	A615-75	55	0.5	0.75	N-Included		No
11	1	231.26291	2.25	A615-75	55	0.5	0.75	N-Included		No
12	1	243.78874	2.25	A615-75	55	0.5	0.75	N-Included		No
13	1	296.21126	2.25	A615-75	55	0.5	0.75	N-Included		No
14	1	308.73709	2.25	A615-75	55	0.5	0.75	N-Included		No
15	1	321.26291	2.25	A615-75	55	0.5	0.75	N-Included		No
16	1	333.78874	2.25	A615-75	55	0.5	0.75	N-Included		No
17	2	45	2.25	A193 Gr. B7	62	0.5	0.75	N-Included		No
18	2	165	2.25	A193 Gr. B7	62	0.5	0.75	N-Included		No
19	2	285	2.25	A193 Gr. B7	62	0.5	0.75	N-Included		No

Plot Graphic



PROJECT **89028.018.01 - Long Eddy / Wright Property, CT**

SUBJECT **Anchor Rod Bracket Analysis**

DATE **02-15-21**

TIA-222 Rev.

H

v4.6.1

Apply TIA-222-H Section 15.5?

Yes



B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Analysis Criteria	
Design/Analysis	Analysis
Load Type	Current Load
Current load	157.88 kips
AR Capacity	375.7 kips

Tower Type	Monopole
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Manufacturers Tower Prop.	
Pole Thickness	0.375 in
Pole Grade	Custom
Fy	65 65 ksi
Fu	80 80 ksi
Base Plate Gr.	Custom
Fy	55 55 ksi
Fu	70 70 ksi

Post-Installed Adhesive AR Mod.	
ARB Type	Welded
Size	2.25 in
Grade	A193 Gr B7
Fy	105 ksi
Fu	125 ksi

Anchor Rod Bracket Analysis Checks		
Tube Bearing	39.3%	-
Tube Compression	58.9%	-
Gusset Shear	23.9%	-
Gusset Flexure	N/A	-
Welds	Gusset to Tower and BP	45.4% -
	Gusset to Tube	48.8% -
	Geometry	N/A -
Tower Punching	7.8%	-
Tube Punching	36.6%	-
Utilization		58.9%

Bracket Properties		
Gusset	Pipe/Tube	Weld - Gusset to Pipe/Tube
Thickness	1.25 in	FEXX
Width at Tube	4.5625 in	70 ksi
Height at Pole	54 in	Weld Type
Height at Tube	14 in	PJP - Double Bevel
Grade	A572-65	Fillet Size
Fy	65 ksi	3/8 in
Fu	80 ksi	Bevel Depth
		3/8 in
Weld - Gusset to Tower	Weld - Gusset to Base Plate	
FEXX	FEXX	
70 ksi	70 ksi	
Weld Type	Weld Type	
Double Fillet	PJP - Double Bevel	
Fillet Size	Fillet Size	
3/8 in	1/2 in	
	Bevel Depth	
	1/2 in	
	Gap	
	0 in	
	Notch (horiz)	
	0.75 in	
	Notch (vert)	
	0.75 in	
	Pipe/Tube Welded to	
	Base/Footpad?	
	Yes	
	Fillet Size	
	1/2 in	

Pier and Pad Foundation



BU #: 876373
Site Name: LONG EDDY /
App. Number: 538775 Rev# 1

TIA-222 Revision: H
Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
Block Foundation?:
Rectangular Pad?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	60	kips
Base Shear, Vu_{comp} :	27	kips
Moment, M_u :	3181	ft-kips
Tower Height, H :	148	ft
BP Dist. Above Fdn, bp_{dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	55	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	112.29	27.00	22.9%	Pass
<i>Bearing Pressure (ksf)</i>	9.00	3.93	43.6%	Pass
<i>Overturning (kip*ft)</i>	4110.28	3295.75	80.2%	Pass
<i>Pad Flexure (kip*ft)</i>	3944.73	1793.82	43.3%	Pass
<i>Pad Shear - 1-way (kips)</i>	1050.72	236.32	21.4%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.003	2.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	3807.33	0.00	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	80.2%
Structural Rating*:	43.3%

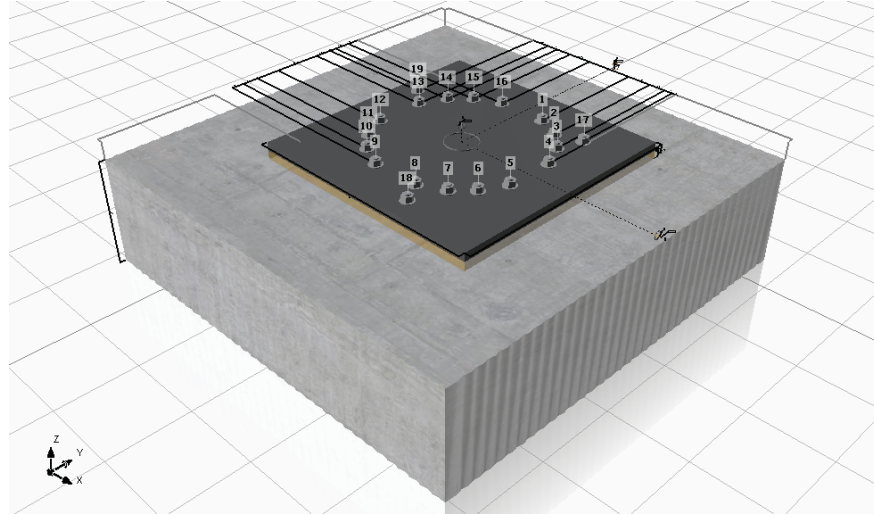
Pad Properties		
Depth, D :	3.5	ft
Pad Width, W_1 :	24.5	ft
Pad Thickness, T :	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	26	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Gross Bearing, Q_{ult} :	12.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	32	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :		
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

<--Toggle between Gross and Net

5.Geometric Conditions



h_{min} **82in** c_{min} 2.063 in c_{ac} 35.438 in s_{min} 8.000 in

6.Summary Results

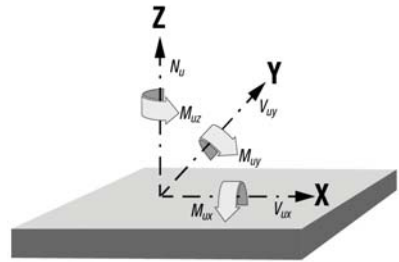
Tension Loading

Design Proof	Demand (lb)	Capacity (lb)	Utilization	Status	Critical
Steel Strength	154968.00	304687.5	52.9%	OK	
Concrete Breakout Strength	841556.00	1293519	69.5%	Not OK	Controls

REV H = 69.5/1.05 = 66.19%

Design Loads / Actions

Nu	-60000 lb	Vux	27000 lb	Vuy	0 lb
Muz	0 in-lb	Demand	0 in-lb	Muy	381720 in-lb
					00
Consider Load Reversal		X Direction	0%	Y Direction	0%





89028_876373_Long Eddy Wright Property

Feb 14 2021

9. Load Distribution

Max. concrete compressive strain:	0.000	%	<u>Anchor Eccentricity</u>			
Max. concrete compressive stress:	0.000	psi	ex	1.438	in	ey 0.611 in
Resulting tension force:	841556.073	lb	<u>Profile Eccentricity</u>			
Resulting compression force:	901556.073	lb	ex	0	in	ey 0 in

Resulting anchor forces / Load distribution

Anchor	Tension Load (lb)	Shear Load (lb)	Component Shear Load (lb)		Anchor Coordinates (in)	
			Shear Y	Shear X	X	Y
1	-44855.92	1407.6	1407.6	4.1	8.094	26.282
2	-84420.27	1409.8	1409.7	8.4	16.428	22.128
3	-111067.53	1412.7	1412.7	11.3	22.128	16.433
4	-129881.78	1417.1	1417.0	13.5	26.282	8.094
5	-127541.62	1425.5	1425.4	13.5	26.282	-8.094
6	-106316.36	1429.8	1429.7	11.3	22.128	-16.433
7	-78022.54	1432.7	1432.7	8.4	16.428	-22.128
8	-37257.22	1434.8	1434.8	4.1	8.094	-26.282
9	40759.11	1434.8	1434.8	-4.3	-8.094	-26.282
10	80323.41	1432.7	1432.7	-8.6	-16.428	-22.128
11	106970.67	1429.8	1429.7	-11.6	-22.128	-16.433
12	125784.92	1425.5	1425.4	-13.7	-26.282	-8.094
13	123444.76	1417.1	1417.0	-13.7	-26.282	8.094
14	102219.50	1412.7	1412.7	-11.6	-22.128	16.433
15	73925.69	1409.8	1409.7	-8.6	-16.428	22.128
16	33160.36	1407.6	1407.6	-4.3	-8.094	26.282
17	-126147.28	1408.3	1408.3	12.8	25.000	25.000
18	-56045.56	1438.4	1438.4	6.2	12.200	-33.200
19	154967.65	1414.1	1414.0	-17.2	-33.000	14.000

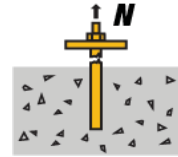
Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

10.Design Proof Tension Loading
Steel Strength:
ACI 318-14 17.4.1
Variables

N_{sa} (lb)	ϕ
406250	0.75

$$N_{sa} = A_{sen} \cdot F_{uta} = 3.25 \cdot 125000$$

$$N_{sa} = 406250$$


Results

ϕN_{sa}	=	304687.5	lb
N_{ua}	=	154968.0	lb
Utilization	=	52.9%	

Table 17.3.1.1

Concrete Breakout Strength
ACI 318-14 17.4.2
Equations

$$N_{cbg} = (A_{Nc} / A_{Nc0}) \cdot \Psi_{ec,N} \cdot \Psi_{ed,N} \cdot \Psi_{c,N} \cdot \Psi_{cp,N} \cdot N_b$$

$$N_b = 16 \cdot \lambda_a \cdot (f_c)^{0.5} \cdot h_{ef}^{5/3}$$



Eqn. 17.4.2.1b

Eqn. 17.4.2.2b

Variables

A_{Nc} (in ²)	A_{Nc0} (in ²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$
90601	60516	0.904	1.000	1.000	1.000
c_{ac} (in)	k_c	λ_a	f_c (psi)	h'_{ef} (in)	
35.438	24.000	1.000	3000	82	
N_b (lb)	ϕ				
1356346	0.70				

Results

ϕN_{cbg}	=	1293519	lb
N_{ua}	=	841556.0	lb
Utilization	=	69.49%	

Table 17.3.1.1

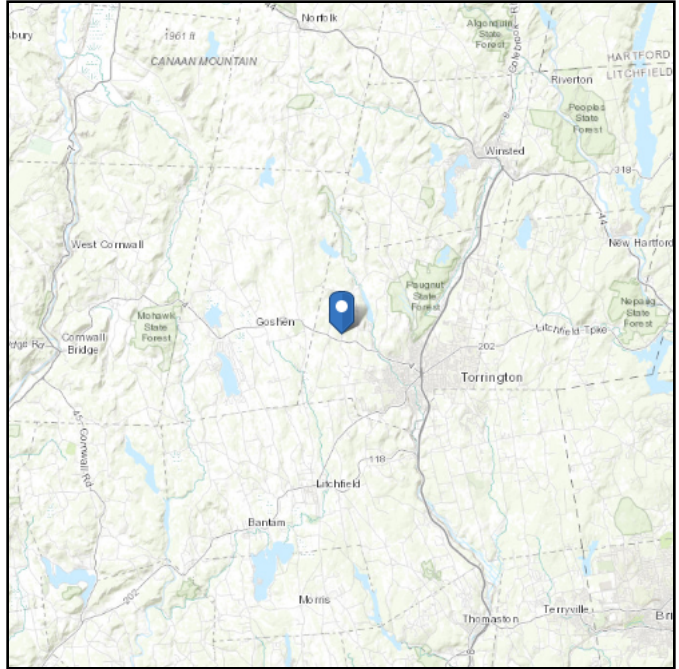
$$h_{ef} = 90 - 6 - 2 = 82 \text{ in}$$

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 1095.02 ft (NAVD 88)
Latitude: 41.827317
Longitude: -73.170547

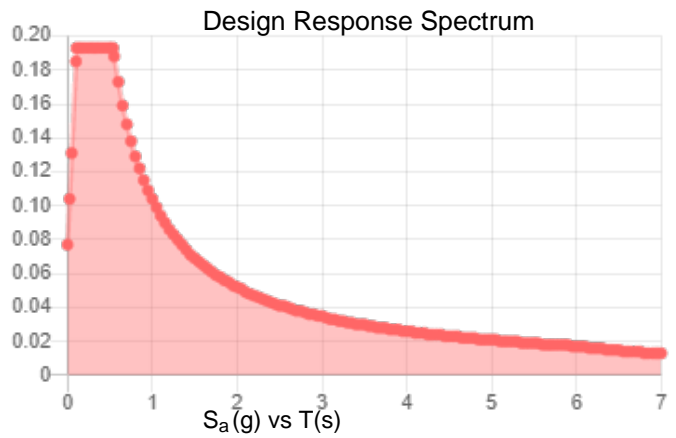
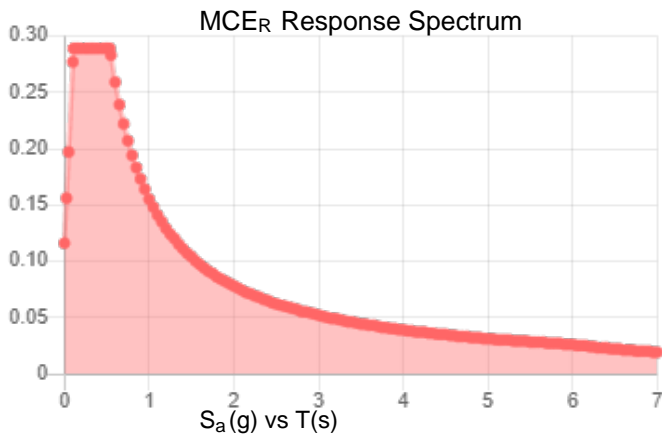


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA _M :	0.145
S_{M1} :	0.155	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Sat Feb 13 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Sat Feb 13 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Mount Analysis

Date: **February 1, 2021**

Darcy Tarr
Crown Castle
6325 Ardrey Kell Road, Suite 600
Charlotte, NC 28277
(704) 405-6589



**GPD Engineering and Architecture
Professional Corporation**
520 South Main Street, Suite 2531
Akron, Ohio 44311
(216) 927-8663
CrownMA@gpdgroup.com

Subject: **Mount Analysis Report**

Carrier Designation: **Sprint PCS Loading Modification**
Carrier Site Number: CTNH579A
Carrier Site Name: CTNH579A

Crown Castle Designation: **Crown Castle BU Number:** 876373
Crown Castle Site Name: LONG EDDY / WRIGHT PROPERTY
Crown Castle JDE Job Number: 628852
Crown Castle Order Number: 538775 Rev. 0

Engineering Firm Designation: **GPD Report Designation:** 2021777.876373.01

Site Data: **136 Wright Rd., Torrington, Litchfield County, CT 06790**
Latitude 41° 49' 38.34" Longitude -73° 10' 13.97"

Structure Information: **Tower Height & Type:** **148.0 ft Monopole Tower**
Mount Elevation: **149.0 ft**
Mount Type: **14.0 ft Platform Mount**

Dear Darcy Tarr,

GPD is pleased to submit this “**Mount Analysis Report**” to determine the structural integrity of Sprint PCS's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform Mount

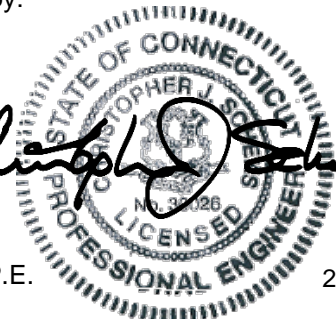

Sufficient*

***The mount has sufficient capacity once the loading changes, as described in Section 4.1 Recommendations of this report, are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Derrick Merwin

Respectfully Submitted by:



Christopher J. Scheks, P.E.
Connecticut #: 0030026

2/1/2021

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

Wire Frame and Rendered Models

6) APPENDIX B

Software Input Calculations

7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

9) APPENDIX E

Supplemental Drawings

1) INTRODUCTION

This is a 14.0' Platform Mount. Mount geometry was obtained from site photos, SCAN's, and experience with similar mounts.

A proposed support rail (Site Pro 1 Part #: HRK14-U, see Appendix E) has been assumed for the purpose of this analysis. In order for the analysis results to be valid, the support rail shall be installed at 36" above the toe rail.

(3) proposed 8' P2 Std. mount pipes have been assumed per sector for the purpose of this analysis. In order for the analysis results to be valid, the mount pipes shall be installed with a centerline elevation of 150'.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount Details
149.0	150.0	3	Ericsson	AIR6449 B41_T-MOBILE	14.0 ft. Platform Mount
		3	RFS/Celwave	APX16DWV-16DWV-S-E-A20	
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4415 B66A	
		3	Ericsson	RADIO 4424 B25_TMO	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 538775 Rev. 0	-	CCI
Support Rail Design	Site Pro 1 Drawing #: HRK14-U, dated 3/10/2015	-	Site Pro 1
RF Data Sheet	Sprint Retain Site ID: CTNH579A, dated 1/15/2021	-	CCI

3.1) Analysis Method

RISA-3D Edition (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by GPD, using Microsoft Excel, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) This analysis assumes all information reference in Table 2 is current and correct.
- 5) The mount was modeled from site photos. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Angle & Plate	ASTM A36 (GR 36)
Channel	ASTM A36 (GR 36)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1 & 3	Face Horizontal	M4	149.0	96.4	Pass
	Inner Horizontal	M5		55.3	Pass
	Corner Angle	M6		20.9	Pass
	Support Rail	M50		63.1	Pass
	8' Pipe Mount	CP1		65.1	Pass
	Support Rail Corner Connection	M54		20.6	Pass
	Standoff Arm	M64		97.8	Pass
2 & 3	Mount to Tower Connection	-		30.6	Pass

Structure Rating (max from all components) =	97.8%³
---	--------------------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
- 3) Ratings per TIA-222-H section 15.5.

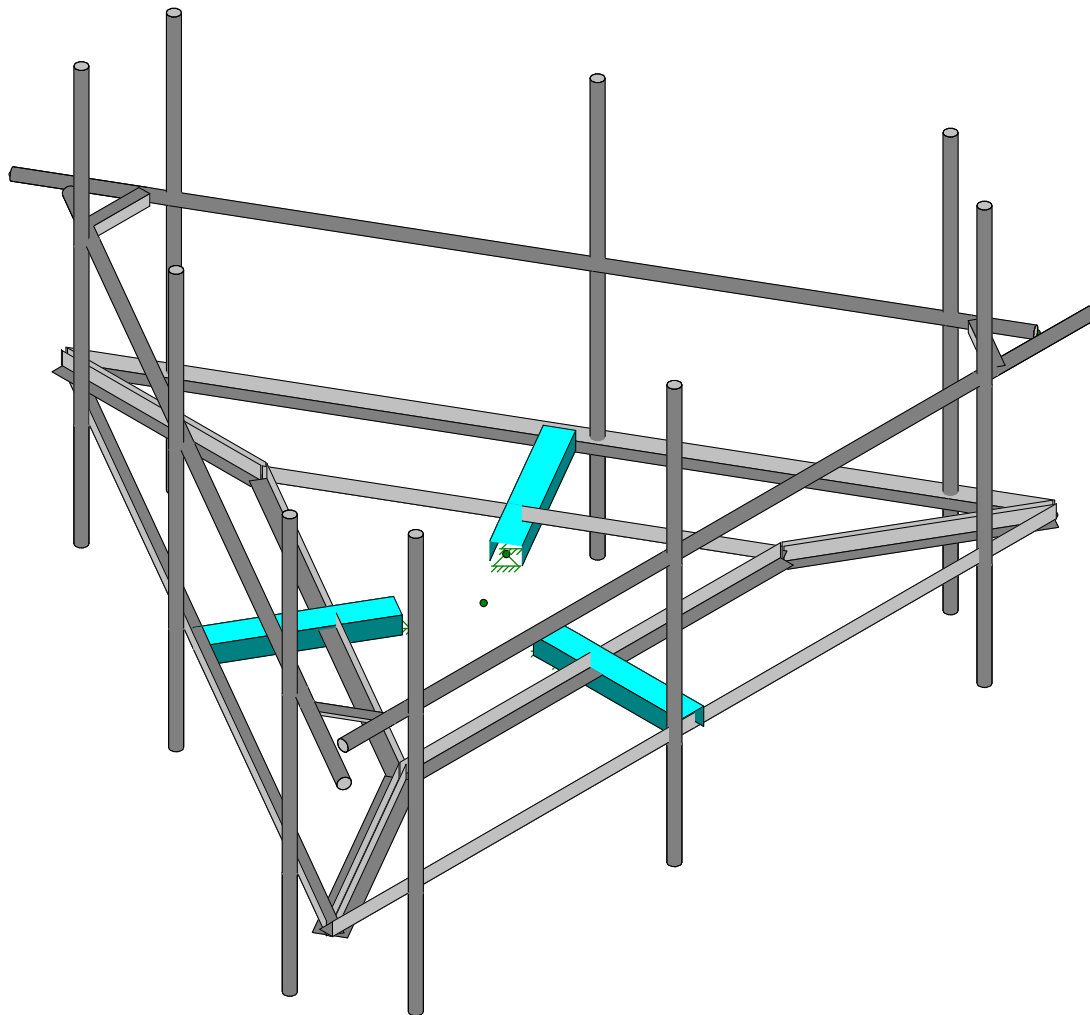
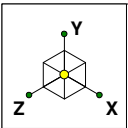
4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the loading modification listed below must be completed.

1. Installation of a proposed support rail (Site Pro 1 Part #: HRK14-U, dated 3/10/2015) 36" above the toe rail. See Appendix E.

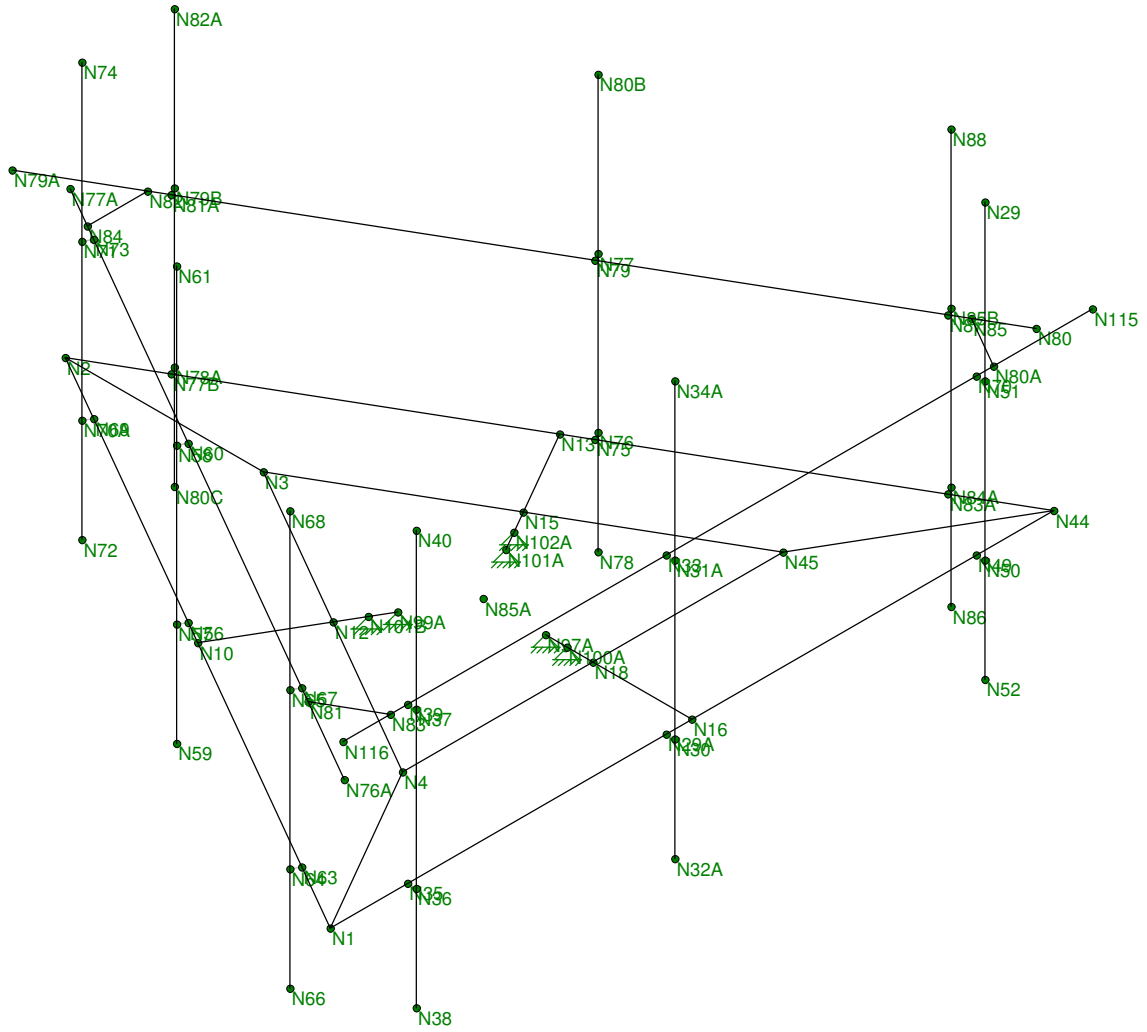
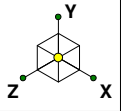
No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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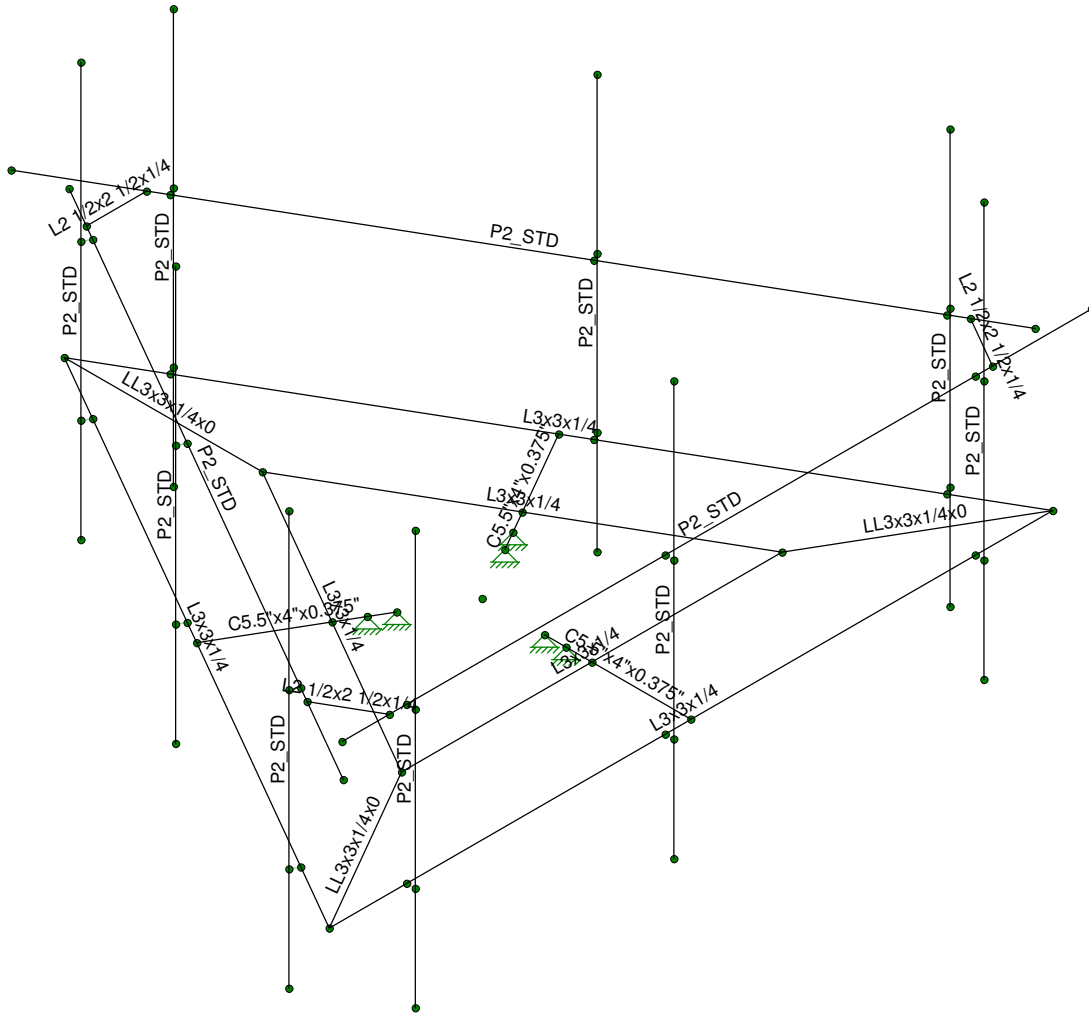
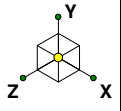


Envelope Only Solution

GPD
Merwin, Derrick
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876373 - LONG EDDY / WRIGHT PROPERTY

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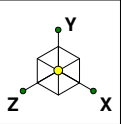


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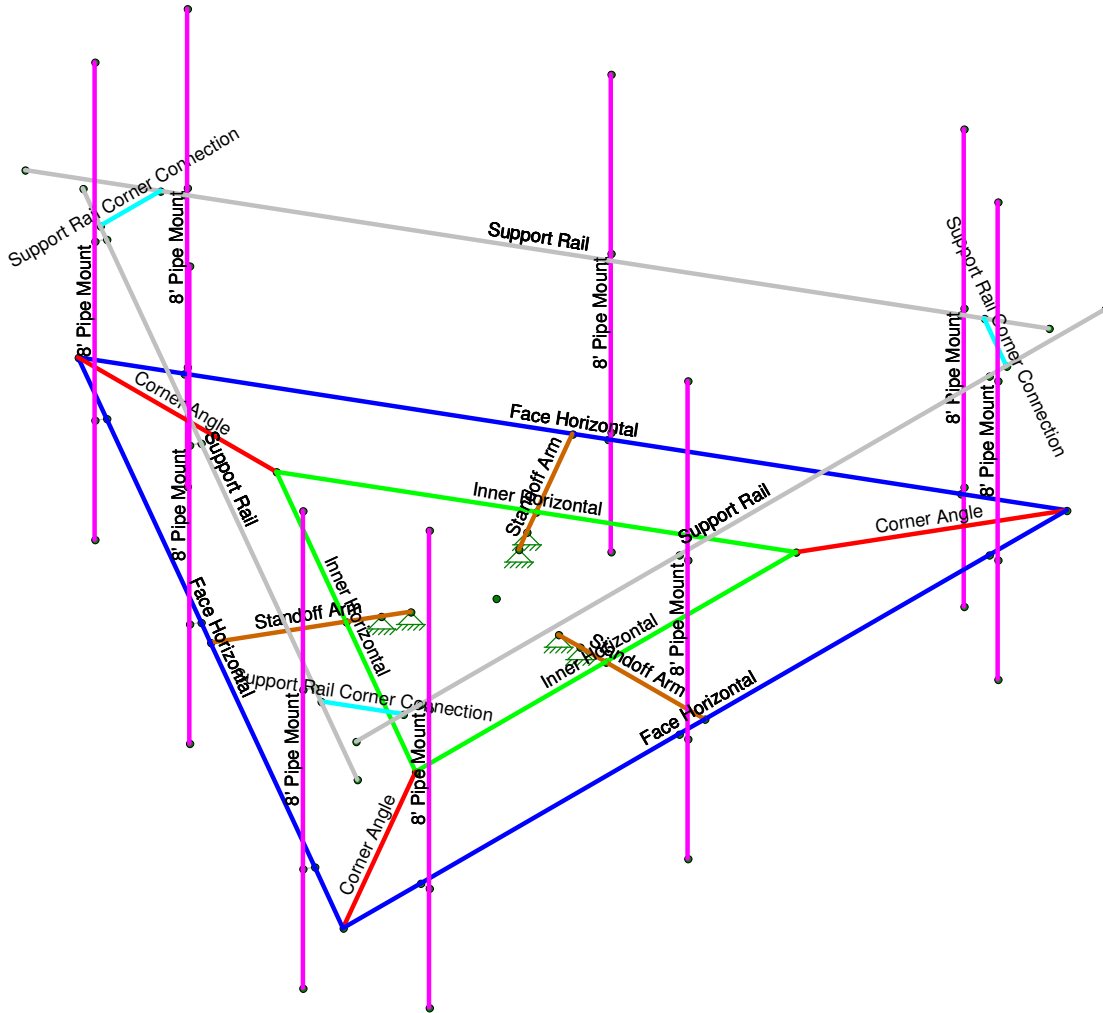
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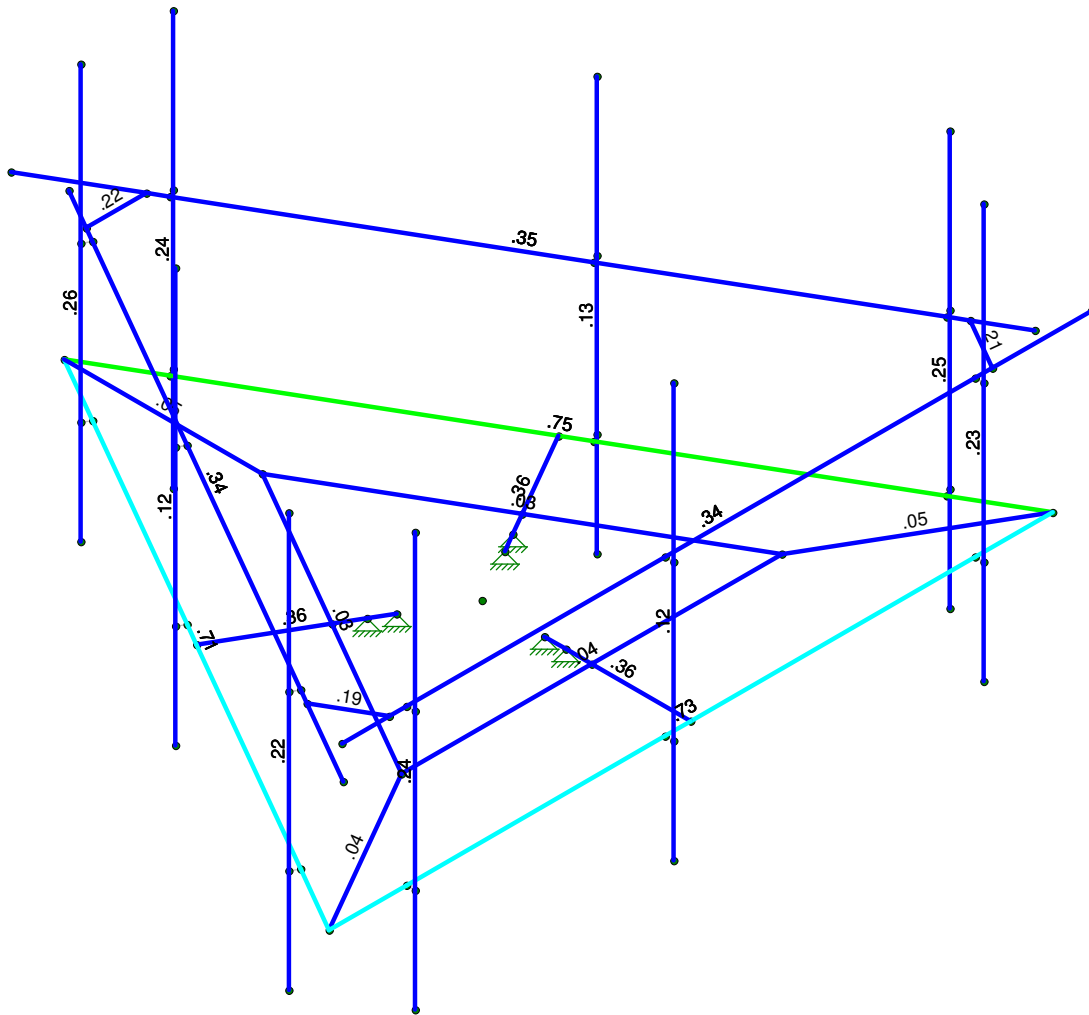
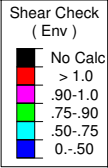
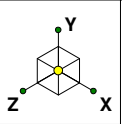


Section Sets	
█	Face Horizontal
█	Inner Horizontal
█	Corner Angle
█	Support Rail
█	8' Pipe Mount
█	Support Rail Corner Connection
█	Standoff Arm
█	RIGID



Envelope Only Solution

GPD	876373 - LONG EDDY / WRIGHT PROPERTY	SK - 4
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Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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APPENDIX B
SOFTWARE INPUT CALCULATIONS



Structure Information	
Structure Type:	Monopole
Structure Height:	148 ft
z (Mount Centerline) =	149 ft
Gh (Mount Gust Effect Factor) =	1.00
Risk Category:	II

Code Specifications	
TIA/EIA Code:	H
Ultimate Wind Speed (No Ice) =	120 mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50 mph (3-s gust)
Ice Thickness	1.5 in
Exposure Category	B
Tower Base Elevation (AMSL)	1094 ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice		Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K _a	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*	
Face Horizontal	Angle	168.000	3	3		4.24	Flat	0.90	1.00	18.64	5.49	12.76	
Inner Horizontal	Angle	88.000	3	3		4.24	Flat	0.90	1.00	18.64	4.40	12.76	
Corner Angle	Other	48.000	3	6	6	6.00	Flat	0.90	1.00	15.84	3.81	16.50	
Support Rail	Pipe	174.000	2.375	2.375		2.38	Round	0.90	1.00	8.85	3.79	8.78	
8' Pipe Mount	Pipe	96.000	2.375	2.375		2.38	Round	0.90	1.00	8.85	3.19	8.78	
Support Rail Corner Connection	Angle	14.000	2.5	2.5		3.54	Flat	0.90	1.00	10.39	2.93	11.25	
Standoff Arm	Square/Rect.	34.000	4	5.5		6.80	Flat	0.90	1.00	18.02	4.19	18.21	

*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K _a and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR6449 B41_T-MOBILE	150	33.11	20.51	8.54	114.63	Flat	0%	0%	0.90	190.23	114.63	38.68	154.53
(3) APX16DWV-16DWV-S-E-A20	150	55.9	13.3	3.15	40.7	CFD	0%	0%	0.90	210.43	40.70	49.01	140.60
(3) APXVAALL24_43-U-NA20_TMO	150	95.9	24	8.5	149.9	CFD	0%	0%	0.90	493.14	149.90	101.55	430.77
(3) RADIO 4415 B66A	150	16.5	13.5	6.3	49.6	Flat	0%	0%	0.90	62.40	49.60	14.15	62.29
(3) RADIO 4424 B25_TMO	150	17.1	14.4	11.3	86	Flat	0%	0%	0.90	68.98	86.00	15.44	86.39
(3) RADIO 4449 B71 B85A_T-MOBILE	150	17.91	13.2	10.63	73.21	Flat	0%	0%	0.90	66.23	73.21	14.92	82.01

*All forces are unfactored.

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		27	54	0
3	Total General		27	54	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L2 1/2x2 1/2x1/4	3	42	0
7	A36 Gr.36	LL3x3x1/4x0	3	138	.1
8	A36 Gr.36	L3x3x1/4	6	769	.3
9	A53 Gr.B	P2 STD	12	1386	.4
10	Total HR Steel		24	2335	.9
11					
12	Cold Formed Steel				
13	A36 Gr36	C5.5"x4"x0.375"	3	102	.1
14	Total CF Steel		3	102	.1

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	48.497423	0	84	0	
2	N2	-96.994845	0	0.	0	
3	N3	-50.994845	0	-0.	0	
4	N4	25.497423	0	44.162831	0	
5	N44	48.497423	0	-84	0	
6	N45	25.497423	0	-44.162831	0	
7	N10	-24.248711	0	42	0	
8	N12	-12.748711	0	22.081416	0	
9	N13	-24.248711	0	-42	0	
10	N15	-12.748711	0	-22.081416	0	
11	N16	48.497423	0	0.	0	
12	N18	25.497423	0	0.	0	
13	N49	48.497423	0	-66	0	
14	N50	50.497423	0	-66	0	
15	N51	50.497423	36	-66	0	
16	N52	50.497423	-24	-66	0	
17	N70	48.497423	36	-66	0	
18	N115	48.497423	36	-93	0	
19	N116	48.497423	36	81	0	
20	N29	50.497423	72	-66	0	
21	N29A	48.497423	0	6	0	
22	N30	50.497423	0	6	0	
23	N31A	50.497423	36	6	0	
24	N32A	50.497423	-24	6	0	
25	N33	48.497423	36	6	0	
26	N34A	50.497423	72	6	0	
27	N35	48.497423	0	66	0	
28	N36	50.497423	0	66	0	
29	N37	50.497423	36	66	0	
30	N38	50.497423	-24	66	0	
31	N39	48.497423	36	66	0	
32	N40	50.497423	72	66	0	
33	N97A	14.497423	0	0.	0	
34	N99A	-7.248711	0	12.555136	0	
35	N101A	-7.248711	0	-12.555136	0	
36	N100A	19.497423	0	0.	0	
37	N101B	-9.748711	0	16.885263	0	



Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
38	N102A	-9.748711	0	-16.885263	0	
39	N85A	0	0	0	0	
40	N76A	56.291651	36	88.5	0	
41	N77A	-94.396769	36	1.5	0	
42	N79A	-104.789074	36	4.5	0	
43	N80	45.899346	36	-82.5	0	
44	N80A	48.497423	36	-70	0	
45	N81	36.373067	36	77.	0	
46	N82	-84.87049	36	-7.	0	
47	N83	48.497423	36	70	0	
48	N84	-84.87049	36	7.	0	
49	N85	36.373067	36	-77.	0	
50	N56	-29.444864	0	39	0	
51	N57	-30.444864	0	40.732051	0	
52	N58	-30.444864	36	40.732051	0	
53	N59	-30.444864	-24	40.732051	0	
54	N60	-29.444864	36	39	0	
55	N61	-30.444864	72	40.732051	0	
56	N75	-19.052559	0	-45	0	
57	N76	-20.052559	0	-46.732051	0	
58	N77	-20.052559	36	-46.732051	0	
59	N78	-20.052559	-24	-46.732051	0	
60	N79	-19.052559	36	-45	0	
61	N80B	-20.052559	72	-46.732051	0	
62	N63	32.908965	0	75	0	
63	N64	31.908965	0	76.732051	0	
64	N65	31.908965	36	76.732051	0	
65	N66	31.908965	-24	76.732051	0	
66	N67	32.908965	36	75	0	
67	N68	31.908965	72	76.732051	0	
68	N69	-81.406388	0	9.	0	
69	N70A	-82.406388	0	10.732051	0	
70	N71	-82.406388	36	10.732051	0	
71	N72	-82.406388	-24	10.732051	0	
72	N73	-81.406388	36	9.	0	
73	N74	-82.406388	72	10.732051	0	
74	N77B	-81.406388	0	-9.	0	
75	N78A	-82.406388	0	-10.732051	0	
76	N79B	-82.406388	36	-10.732051	0	
77	N80C	-82.406388	-24	-10.732051	0	
78	N81A	-81.406388	36	-9.	0	
79	N82A	-82.406388	72	-10.732051	0	
80	N83A	32.908965	0	-75	0	
81	N84A	31.908965	0	-76.732051	0	
82	N85B	31.908965	36	-76.732051	0	
83	N86	31.908965	-24	-76.732051	0	
84	N87	32.908965	36	-75	0	
85	N88	31.908965	72	-76.732051	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	Face Horizontal	L3x3x1/4	None	None	A36 Gr.36	Typical	1.438	1.244	1.244	.028
2	Inner Horizontal	L3x3x1/4	None	None	A36 Gr.36	Typical	1.438	1.244	1.244	.028
3	Corner Angle	LL3x3x1/4x0	None	None	A36 Gr.36	Typical	2.875	4.529	2.488	.057
4	Support Rail	P2_STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331



Company : GPD
 Designer : Merwin, Derrick
 Job Number : 2021777.876373.01
 Model Name : 876373 - LONG EDDY / WRIGHT PROPERTY

Feb 1, 2021
 10:23 AM
 Checked By: _____

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design ...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
5	8' Pipe Mount	P2 STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
6	Support Rail Corner Con...	L2 1/2x2 1/2x1/4	None	None	A36 Gr.36	Typical	1.19	.692	.692	.026

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Standoff Arm	C5.5"x4"x0.375"	None	None	A36 Gr36	Typical	4.56	7.284	21.409	.214

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
1	AP1	N29	N52			8' Pipe Mount	None	None	A53 Gr.B	Typical
2	AP2	N34A	N32A			8' Pipe Mount	None	None	A53 Gr.B	Typical
3	AP3	N40	N38			8' Pipe Mount	None	None	A53 Gr.B	Typical
4	BP1	N68	N66		120	8' Pipe Mount	None	None	A53 Gr.B	Typical
5	BP2	N61	N59		120	8' Pipe Mount	None	None	A53 Gr.B	Typical
6	BP3	N74	N72		120	8' Pipe Mount	None	None	A53 Gr.B	Typical
7	CP1	N82A	N80C		240	8' Pipe Mount	None	None	A53 Gr.B	Typical
8	CP2	N80B	N78		240	8' Pipe Mount	None	None	A53 Gr.B	Typical
9	CP3	N88	N86		240	8' Pipe Mount	None	None	A53 Gr.B	Typical
10	M1	N1	N2			Face Horizontal	None	None	A36 Gr.36	Typical
11	M2	N3	N4			Inner Horizontal	None	None	A36 Gr.36	Typical
12	M3	N4	N1		180	Corner Angle	None	None	A36 Gr.36	Typical
13	M4	N2	N44			Face Horizontal	None	None	A36 Gr.36	Typical
14	M5	N45	N3			Inner Horizontal	None	None	A36 Gr.36	Typical
15	M6	N3	N2		180	Corner Angle	None	None	A36 Gr.36	Typical
16	M7	N44	N1			Face Horizontal	None	None	A36 Gr.36	Typical
17	M8	N4	N45			Inner Horizontal	None	None	A36 Gr.36	Typical
18	M9	N45	N44		180	Corner Angle	None	None	A36 Gr.36	Typical
19	M11	N49	N50			RIGID	None	None	RIGID	Typical
20	M12	N70	N51			RIGID	None	None	RIGID	Typical
21	M13	N115	N116			Support Rail	None	None	A53 Gr.B	Typical
22	M14	N70	N51			RIGID	None	None	RIGID	Typical
23	M16	N29A	N30			RIGID	None	None	RIGID	Typical
24	M17	N33	N31A			RIGID	None	None	RIGID	Typical
25	M18	N33	N31A			RIGID	None	None	RIGID	Typical
26	M20	N35	N36			RIGID	None	None	RIGID	Typical
27	M21	N39	N37			RIGID	None	None	RIGID	Typical
28	M22	N39	N37			RIGID	None	None	RIGID	Typical
29	M37	N56	N57			RIGID	None	None	RIGID	Typical
30	M38	N60	N58			RIGID	None	None	RIGID	Typical
31	M39	N60	N58			RIGID	None	None	RIGID	Typical
32	M41	N63	N64			RIGID	None	None	RIGID	Typical
33	M42	N67	N65			RIGID	None	None	RIGID	Typical
34	M43	N67	N65			RIGID	None	None	RIGID	Typical
35	M44	N69	N70A			RIGID	None	None	RIGID	Typical
36	M45	N73	N71			RIGID	None	None	RIGID	Typical
37	M46	N73	N71			RIGID	None	None	RIGID	Typical
38	M49	N75	N76			RIGID	None	None	RIGID	Typical
39	M49A	N77B	N78A			RIGID	None	None	RIGID	Typical
40	M50	N76A	N77A			Support Rail	None	None	A53 Gr.B	Typical
41	M50A	N79	N77			RIGID	None	None	RIGID	Typical
42	M50B	N81A	N79B			RIGID	None	None	RIGID	Typical
43	M51	N79A	N80			Support Rail	None	None	A53 Gr.B	Typical
44	M51A	N79	N77			RIGID	None	None	RIGID	Typical
45	M51B	N81A	N79B			RIGID	None	None	RIGID	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
46	M52	N85	N80A		180	Support Rail Corner Connection	None	None	A36 Gr.36	Typical
47	M52A	N83A	N84A			RIGID	None	None	RIGID	Typical
48	M53	N83	N81		180	Support Rail Corner Connection	None	None	A36 Gr.36	Typical
49	M53A	N87	N85B			RIGID	None	None	RIGID	Typical
50	M54	N84	N82		180	Support Rail Corner Connection	None	None	A36 Gr.36	Typical
51	M54A	N87	N85B			RIGID	None	None	RIGID	Typical
52	M64	N16	N97A		90	Standoff Arm	None	None	A36 Gr36	Typical
53	M65	N10	N99A		90	Standoff Arm	None	None	A36 Gr36	Typical
54	M66	N13	N101A		90	Standoff Arm	None	None	A36 Gr36	Typical

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65
3	A36 Gr36	29000	11154	.3	.65	.49	36	58

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL		-1			30		3	
2	No Ice Wind 0 deg	None					30	25		
3	No Ice Wind 30 deg	None					60	46		
4	No Ice Wind 60 deg	None					60	50		
5	No Ice Wind 90 deg	None					30	23		
6	No Ice Wind 120 deg	None					60	50		
7	No Ice Wind 150 deg	None					60	46		
8	No Ice Wind 180 deg	None					30	25		
9	No Ice Wind 210 deg	None					60	46		
10	No Ice Wind 240 deg	None					60	50		
11	No Ice Wind 270 deg	None					30	23		
12	No Ice Wind 300 deg	None					60	50		
13	No Ice Wind 330 deg	None					60	46		
14	Ice Weight	None					30	27	3	
15	Ice Wind 0 deg	None					30	25		
16	Ice Wind 30 deg	None					60	46		
17	Ice Wind 60 deg	None					60	50		
18	Ice Wind 90 deg	None					30	23		
19	Ice Wind 120 deg	None					60	50		
20	Ice Wind 150 deg	None					60	46		
21	Ice Wind 180 deg	None					30	25		
22	Ice Wind 210 deg	None					60	46		
23	Ice Wind 240 deg	None					60	50		
24	Ice Wind 270 deg	None					30	23		



Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
25	Ice Wind 300 deg	None					60	50		
26	Ice Wind 330 deg	None					60	46		
27	Live Load - AP1	None					1			
28	Live Load - AP2	None					1			
29	Live Load - AP3	None					1			
30	Live Load - BP1	None					1			
31	Live Load - BP2	None					1			
32	Live Load - BP3	None					1			
33	Live Load - CP1	None					1			
34	Live Load - CP2	None					1			
35	Live Load - CP3	None					1			
36	Live Load - M1 (Start)	None					1			
37	Live Load - M1 (Middle)	None					1			
38	Live Load - M1 (End)	None					1			
39	Live Load - M4 (Start)	None					1			
40	Live Load - M4 (Middle)	None					1			
41	Live Load - M4 (End)	None					1			
42	Live Load - M7 (Start)	None					1			
43	Live Load - M7 (Middle)	None					1			
44	Live Load - M7 (End)	None					1			
45	Live Load - M13 (Start)	None					1			
46	Live Load - M13 (Middle)	None					1			
47	Live Load - M13 (End)	None					1			
48	Live Load - M50 (Start)	None					1			
49	Live Load - M50 (Middle)	None					1			
50	Live Load - M50 (End)	None					1			
51	Live Load - M51 (Start)	None					1			
52	Live Load - M51 (Middle)	None					1			
53	Live Load - M51 (End)	None					1			
54	BLC 1 Transient Area Loads	None						30		
55	BLC 14 Transient Area Loads	None						30		

Load Combinations

	Description	So...	PDelta	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
1	1.4 Dead	Yes	Y		1	1.4	0	0	0	0	0	0	0	0
2	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	2	1	0	0	0	0	0	0
3	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	2	1	0	0	0	0	0	0
4	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	3	1	0	0	0	0	0	0
5	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	3	1	0	0	0	0	0	0
6	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	4	1	0	0	0	0	0	0
7	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	4	1	0	0	0	0	0	0
8	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	5	1	0	0	0	0	0	0
9	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	5	1	0	0	0	0	0	0
10	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	6	1	0	0	0	0	0	0
11	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	6	1	0	0	0	0	0	0
12	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	7	1	0	0	0	0	0	0
13	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	7	1	0	0	0	0	0	0
14	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	8	1	0	0	0	0	0	0
15	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	8	1	0	0	0	0	0	0
16	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	9	1	0	0	0	0	0	0
17	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	9	1	0	0	0	0	0	0
18	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	10	1	0	0	0	0	0	0
19	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	10	1	0	0	0	0	0	0
20	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	11	1	0	0	0	0	0	0
21	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	11	1	0	0	0	0	0	0



Load Combinations (Continued)

	Description	So...	PDelta	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
22	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	12	1	0		0	0	0	0
23	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	12	1	0		0	0	0	0
24	1.2 Dead + 1.0 Wind...	Yes	Y		1	1.2	13	1	0		0	0	0	0
25	0.9 Dead + 1.0 Wind...	Yes	Y		1	.9	13	1	0		0	0	0	0
26	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	15	1	14	1	1	0	0	0
27	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	16	1	14	1	1	0	0	0
28	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	17	1	14	1	1	0	0	0
29	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	18	1	14	1	1	0	0	0
30	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	19	1	14	1	1	0	0	0
31	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	20	1	14	1	1	0	0	0
32	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	21	1	14	1	1	0	0	0
33	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	22	1	14	1	1	0	0	0
34	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	23	1	14	1	1	0	0	0
35	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	24	1	14	1	1	0	0	0
36	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	25	1	14	1	1	0	0	0
37	1.2 Dead + 1.0 Ice ...	Yes	Y		1	1.2	26	1	14	1	1	0	0	0
38	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	2	.063	0	0	0	0
39	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	3	.063	0	0	0	0
40	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	4	.063	0	0	0	0
41	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	5	.063	0	0	0	0
42	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	6	.063	0	0	0	0
43	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	7	.063	0	0	0	0
44	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	8	.063	0	0	0	0
45	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	9	.063	0	0	0	0
46	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	10	.063	0	0	0	0
47	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	11	.063	0	0	0	0
48	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	12	.063	0	0	0	0
49	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	13	.063	0	0	0	0
50	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	2	.063	0	0	0	0
51	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	3	.063	0	0	0	0
52	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	4	.063	0	0	0	0
53	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	5	.063	0	0	0	0
54	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	6	.063	0	0	0	0
55	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	7	.063	0	0	0	0
56	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	8	.063	0	0	0	0
57	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	9	.063	0	0	0	0
58	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	10	.063	0	0	0	0
59	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	11	.063	0	0	0	0
60	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	12	.063	0	0	0	0
61	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	13	.063	0	0	0	0
62	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	2	.063	0	0	0	0
63	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	3	.063	0	0	0	0
64	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	4	.063	0	0	0	0
65	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	5	.063	0	0	0	0
66	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	6	.063	0	0	0	0
67	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	7	.063	0	0	0	0
68	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	8	.063	0	0	0	0
69	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	9	.063	0	0	0	0
70	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	10	.063	0	0	0	0
71	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	11	.063	0	0	0	0
72	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	12	.063	0	0	0	0
73	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	13	.063	0	0	0	0
74	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	30	1.5	2	.063	0	0	0	0
75	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	30	1.5	3	.063	0	0	0	0
76	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	30	1.5	4	.063	0	0	0	0
77	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	30	1.5	5	.063	0	0	0	0
78	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	30	1.5	6	.063	0	0	0	0



Load Combinations (Continued)

	Description	So...	PDelta	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
79	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	7	.063	0	0	0	0	0
80	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	8	.063	0	0	0	0	0
81	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	9	.063	0	0	0	0	0
82	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	10	.063	0	0	0	0	0
83	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	11	.063	0	0	0	0	0
84	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	12	.063	0	0	0	0	0
85	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	30	1.5	13	.063	0	0	0	0	0
86	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	2	.063	0	0	0	0	0
87	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	3	.063	0	0	0	0	0
88	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	4	.063	0	0	0	0	0
89	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	5	.063	0	0	0	0	0
90	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	6	.063	0	0	0	0	0
91	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	7	.063	0	0	0	0	0
92	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	8	.063	0	0	0	0	0
93	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	9	.063	0	0	0	0	0
94	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	10	.063	0	0	0	0	0
95	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	11	.063	0	0	0	0	0
96	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	12	.063	0	0	0	0	0
97	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	31	1.5	13	.063	0	0	0	0	0
98	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	2	.063	0	0	0	0	0
99	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	3	.063	0	0	0	0	0
100	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	4	.063	0	0	0	0	0
101	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	5	.063	0	0	0	0	0
102	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	6	.063	0	0	0	0	0
103	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	7	.063	0	0	0	0	0
104	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	8	.063	0	0	0	0	0
105	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	9	.063	0	0	0	0	0
106	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	10	.063	0	0	0	0	0
107	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	11	.063	0	0	0	0	0
108	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	12	.063	0	0	0	0	0
109	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	32	1.5	13	.063	0	0	0	0	0
110	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	2	.063	0	0	0	0	0
111	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	3	.063	0	0	0	0	0
112	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	4	.063	0	0	0	0	0
113	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	5	.063	0	0	0	0	0
114	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	6	.063	0	0	0	0	0
115	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	7	.063	0	0	0	0	0
116	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	8	.063	0	0	0	0	0
117	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	9	.063	0	0	0	0	0
118	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	10	.063	0	0	0	0	0
119	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	11	.063	0	0	0	0	0
120	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	12	.063	0	0	0	0	0
121	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	33	1.5	13	.063	0	0	0	0	0
122	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	2	.063	0	0	0	0	0
123	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	3	.063	0	0	0	0	0
124	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	4	.063	0	0	0	0	0
125	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	5	.063	0	0	0	0	0
126	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	6	.063	0	0	0	0	0
127	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	7	.063	0	0	0	0	0
128	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	8	.063	0	0	0	0	0
129	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	9	.063	0	0	0	0	0
130	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	10	.063	0	0	0	0	0
131	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	11	.063	0	0	0	0	0
132	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	12	.063	0	0	0	0	0
133	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	34	1.5	13	.063	0	0	0	0	0
134	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	35	1.5	2	.063	0	0	0	0	0
135	1.2 Dead + 1.5 Live...	Yes	Y	1	1.2	35	1.5	3	.063	0	0	0	0	0



Load Combinations (Continued)

	Description	So...	PDelta	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
136	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	4	.063	0	0	0	0
137	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	5	.063	0	0	0	0
138	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	6	.063	0	0	0	0
139	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	7	.063	0	0	0	0
140	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	8	.063	0	0	0	0
141	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	9	.063	0	0	0	0
142	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	10	.063	0	0	0	0
143	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	11	.063	0	0	0	0
144	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	12	.063	0	0	0	0
145	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	35	1.5	13	.063	0	0	0	0
146	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	36	1.5	0		0	0	0	0
147	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	37	1.5	0		0	0	0	0
148	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	38	1.5	0		0	0	0	0
149	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	39	1.5	0		0	0	0	0
150	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	40	1.5	0		0	0	0	0
151	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	41	1.5	0		0	0	0	0
152	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	42	1.5	0		0	0	0	0
153	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	43	1.5	0		0	0	0	0
154	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	44	1.5	0		0	0	0	0
155	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	45	1.5	0		0	0	0	0
156	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	46	1.5	0		0	0	0	0
157	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	47	1.5	0		0	0	0	0
158	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	48	1.5	0		0	0	0	0
159	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	49	1.5	0		0	0	0	0
160	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	50	1.5	0		0	0	0	0
161	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	51	1.5	0		0	0	0	0
162	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	52	1.5	0		0	0	0	0
163	1.2 Dead + 1.5 Live...	Yes	Y		1	1.2	53	1.5	0		0	0	0	0

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N99A	max	1963.191	20	1753.886	9	1131.759	20	0	163	0	163	0	163
2		min	-1868.4...	9	-17391....	35	-1077.0...	9	0	1	0	1	0	1
3	N97A	max	1.267	25	2102.758	3	2017.213	17	0	163	0	163	0	163
4		min	-1.267	12	-17490....	32	-2153.0...	4	0	1	0	1	0	1
5	N101A	max	1936.389	17	2382.222	19	1174.868	4	0	163	0	163	0	163
6		min	-2032.9...	4	-17481....	28	-1119.1...	17	0	1	0	1	0	1
7	N100A	max	613.502	3	21143.0...	32	3935.685	6	0	163	0	163	0	163
8		min	-582.313	15	-2496.9...	3	-3817.9...	19	0	1	0	1	0	1
9	N101B	max	3096.284	25	21018.8...	35	2237.147	9	0	163	0	163	0	163
10		min	-3203.4...	12	-2053.3...	9	-2241.5...	20	0	1	0	1	0	1
11	N102A	max	3433.998	4	21132.1...	28	2226.885	9	0	163	0	163	0	163
12		min	-3389.6...	17	-2833.4...	19	-2307.4...	20	0	1	0	1	0	1
13	Totals:	max	3831.64	2	9866.59	26	4001.194	8						
14		min	-3831.6...	14	2835.495	15	-4001.1...	20						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
1	M4	L3x3x1/4	1.012	1.05	0.964*	84	8	0.752	1.05	0.716*	84	29554.315	46575	1.715	3.437	1.785	H2-1
2	M7	L3x3x1/4	0.997	1.05	0.95*	84	32	0.731	1.05	0.696*	84	29554.315	46575	1.715	3.47	1.871	H2-1
3	M1	L3x3x1/4	0.979	1.05	0.932*	84	36	0.707	1.05	0.673*	84	29554.315	46575	1.715	3.47	1.871	H2-1
4	CP1	P2 STD	0.684	1.05	0.651*	36	8	0.242	1.05	0.23*	72	15814.703	33862.5	1.998	1.998	2.226	H1-1b
5	M50	P2 STD	0.663	1.05	0.631*	99.69	20	0.344	1.05	0.328*	161.3	11762.208	33862.5	1.998	1.998	3.018	H1-1b
6	M51	P2 STD	0.66	1.05	0.629*	99.69	6	0.353	1.05	0.336*	23.56	11762.208	33862.5	1.998	1.998	1.914	H3-6
7	AP1	P2 STD	0.652	1.05	0.621*	36	16	0.233	1.05	0.222*	72	15814.703	33862.5	1.998	1.998	2.466	H1-1b
8	BP3	P2 STD	0.642	1.05	0.611*	36	20	0.263	1.05	0.25*	72	15814.703	33862.5	1.998	1.998	1.75	H1-1b
9	M13	P2 STD	0.64	1.05	0.61*	99.69	14	0.337	1.05	0.321*	23.56	11762.208	33862.5	1.998	1.998	1.922	H3-6
10	CP3	P2 STD	0.612	1.05	0.583*	36	4	0.25	1.05	0.238*	72	15814.703	33862.5	1.998	1.998	1.788	H1-1b
11	BP1	P2 STD	0.611	1.05	0.582*	36	24	0.22	1.05	0.21*	36	15814.703	33862.5	1.998	1.998	2.476	H1-1b
12	M5	L3x3x1/4	0.581	1.05	0.553*	44.16	29	0.034	1.05	0.032*	44.16	41072.663	46575	1.715	3.645	1.29	H2-1
13	M2	L3x3x1/4	0.575	1.05	0.548*	44.16	35	0.035	1.05	0.033*	44.16	41072.663	46575	1.715	3.647	1.296	H2-1
14	M8	L3x3x1/4	0.574	1.05	0.547*	44.16	32	0.035	1.05	0.033*	44.16	41072.663	46575	1.715	3.646	1.292	H2-1
15	AP3	P2 STD	0.569	1.05	0.542*	36	12	0.242	1.05	0.23*	36	15814.703	33862.5	1.998	1.998	1.685	H1-1b
16	AP2	P2 STD	0.542	1.05	0.516*	72	8	0.125	1.05	0.119*	36	15814.703	33862.5	1.998	1.998	1.567	H1-1b
17	CP2	P2 STD	0.529	1.05	0.504*	72	2	0.126	1.05	0.12*	36	15814.703	33862.5	1.998	1.998	2.026	H1-1b
18	BP2	P2 STD	0.529	1.05	0.504*	72	18	0.115	1.05	0.11*	36	15814.703	33862.5	1.998	1.998	2.004	H1-1b
19	M6	LL3x3x1/4x0	0.219	1.05	0.209*	46	8	0.05	1.05	0.048*	0	75608.557	93150	6.521	4.345	1.928	H1-1b
20	M9	LL3x3x1/4x0	0.208	1.05	0.198*	46	16	0.047	1.05	0.045*	0	75608.557	93150	6.521	4.345	1.942	H1-1b
21	M3	LL3x3x1/4x0	0.197	1.05	0.188*	46	24	0.043	1.05	0.041*	0	75608.557	93150	6.521	4.345	1.929	H1-1b
22	M54	L2 1/2x2 1/2x1/4	0.191	1.05	0.182*	14	11	0.216	1.05	0.206*	0	36881.065	38556	0.444	2.537	2.21	H2-1
23	M52	L2 1/2x2 1/2x1/4	0.168	1.05	0.16*	12.83	19	0.207	1.05	0.197*	0	36881.065	38556	0.444	2.537	2.21	H2-1
24	M53	L2 1/2x2 1/2x1/4	0.166	1.05	0.158*	13.27	3	0.19	1.05	0.181*	0	36881.065	38556	0.444	2.537	2.208	H2-1
25	M64	C5.5"x4"x0.375"	1.027	1.05	0.978*	29.04	32	0.364	1.05	0.347*	29.04	127072.49	147742.12	7.53	21.017	28856	48094
26	M66	C5.5"x4"x0.375"	1.026	1.05	0.977*	29.04	28	0.364	1.05	0.347*	29.04	127072.49	147742.12	7.53	21.017	28856	48094
27	M65	C5.5"x4"x0.375"	1.021	1.05	0.972*	29.04	35	0.362	1.05	0.345*	29.04	127072.49	147742.12	7.53	21.017	28856	48094

*Rating per TIA-222-H, Section 15.5&

APPENDIX D
ADDITIONAL CALCULATIONS



TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Typ. All Sectors
2021777.876373.01

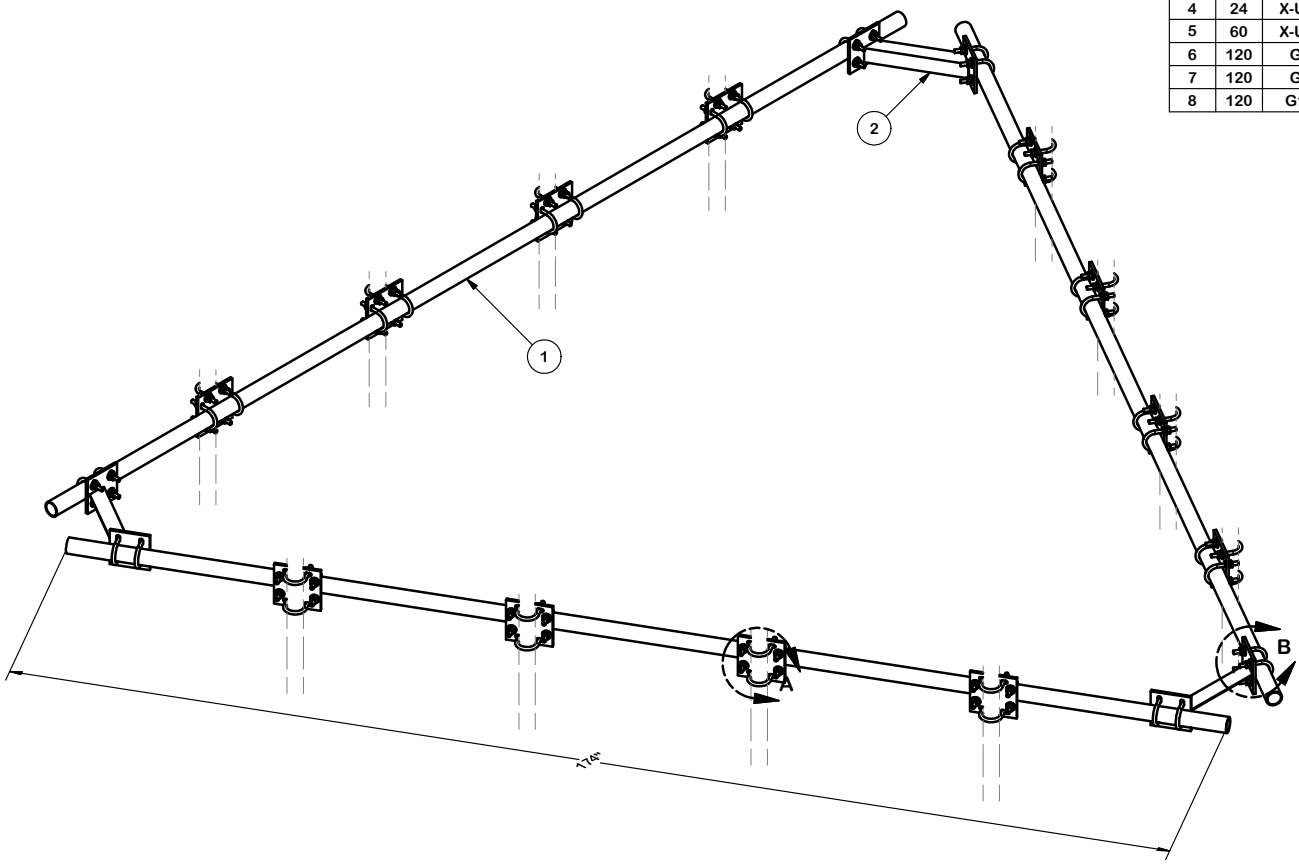
Bolt Information	
Bolt Diameter (d)	1 in
Net Tensile Area (A _n)	0.606 in ²
# of Bolts Total (n)	1
Bolt Grade	A325N
Bolt Tensile Strength (F _{ub})	120 ksi

RISA 3D Reactions	
Moment (M)	0.00 k-ft
Axial (T)	17.49 kips
Shear (V)	0.20 kips

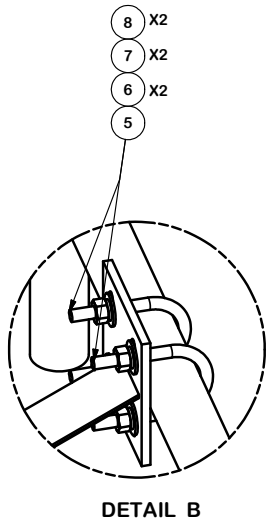
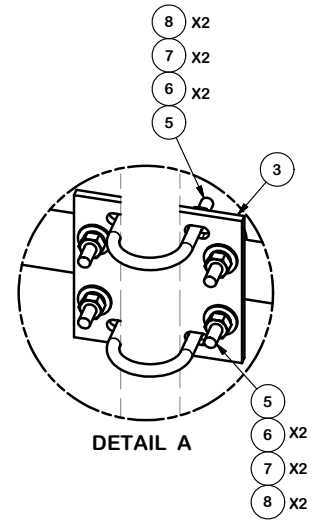
Bolt Capacity	
Nominal Tensile Strength (R _{nt})	72.689 kips
Nominal Shear Strength (R _{nv})	47.12 kips
Bolt Tensile Force (T _{ub})	17.49 kips
Bolt Shear Force (V _{ub})	0.204 kips
$T_{ub}/\phi R_{nt}$	0.30555
$V_{ub}/\phi R_{nv}$	0.00549
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.09806
Bolt Capacity =	30.6% OK

*Rating per TIA-222-H, Section 15.5

APPENDIX E
SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2174	2-3/8" OD X 174" SCH 40 GALVANIZED PIPE	174 in	55.75	167.24
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
4	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	17.56
5	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	43.90
6	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.09
7	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
8	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60



TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION		UNIVERSAL HANDRAIL KIT FOR 14' PLATFORM	
		2-3/8" & 2-7/8" ANTENNA PIPES	
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 3/10/2015		HRK14-U
CLASS	DRAWING USAGE	CHECKED BY	DWG. NO.
81	CUSTOMER	BMC 3/10/2015	HRK14-U

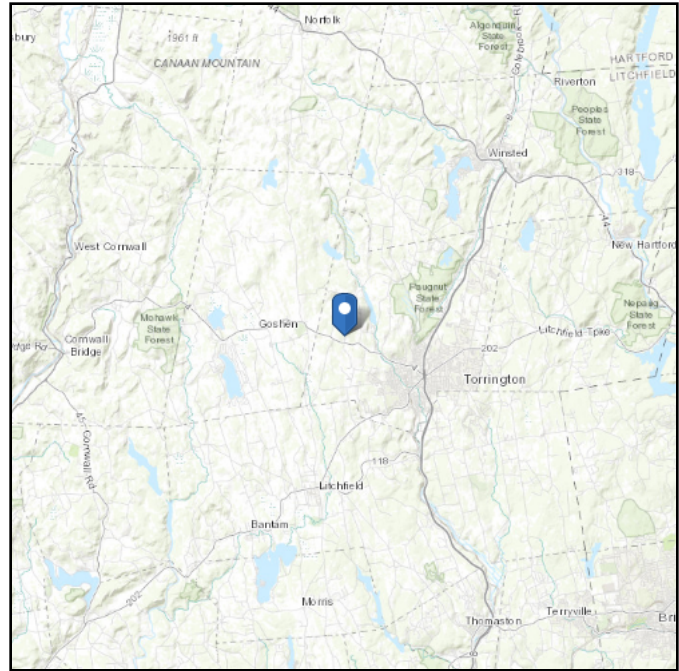
 A valmont COMPANY	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	Engineering Support Team: 1-888-753-7446

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 1095.02 ft (NAVD 88)
Latitude: 41.827317
Longitude: -73.170547



Wind

Results:

Wind Speed:	116 Vmph 120 Vmph per 2018 Connecticut Building Code Appendix N
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Fri Jan 29 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

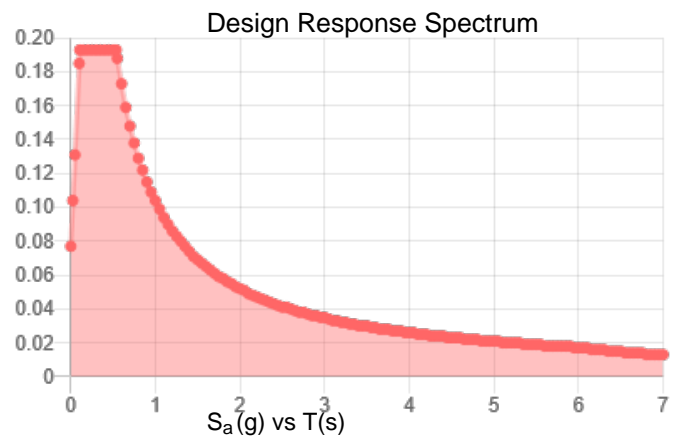
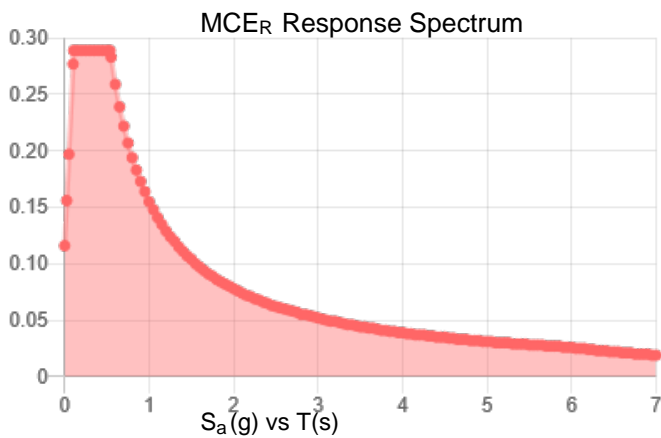
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.181	S_{DS} :	0.193
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA _M :	0.145
S_{M1} :	0.155	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Jan 29 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Fri Jan 29 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit F

Power Density/RF Emissions Report

**RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS**

T-Mobile Existing Facility

Site ID: CTNH579A

**136 Wright Road
Torrington, Connecticut 06790**

March 12, 2021

EBI Project Number: 6221001150

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	27.77%

March 12, 2021

T-Mobile

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNH579A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **136 Wright Road in Torrington, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 136 Wright Road in Torrington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 12) The antenna mounting height centerline of the proposed antennas is 150 feet above ground level (AGL).
- 13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna AI MPE %:	0.81%	Antenna BI MPE %:	0.81%	Antenna CI MPE %:	0.81%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A2 MPE %:	3.17%	Antenna B2 MPE %:	3.17%	Antenna C2 MPE %:	3.17%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A3 MPE %:	2.23%	Antenna B3 MPE %:	2.23%	Antenna C3 MPE %:	2.23%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	6.22%
Verizon	13.45%
Sprint	2.63%
AT&T	5.47%
Site Total MPE % :	27.77%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	6.22%
T-Mobile Sector B Total:	6.22%
T-Mobile Sector C Total:	6.22%
Site Total MPE % :	27.77%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz LTE	2	2334.27	150.0	8.09	2100 MHz LTE	1000	0.81%
T-Mobile 600 MHz LTE	2	591.73	150.0	2.05	600 MHz LTE	400	0.51%
T-Mobile 600 MHz NR	1	1577.94	150.0	2.74	600 MHz NR	400	0.68%
T-Mobile 700 MHz LTE	2	695.22	150.0	2.41	700 MHz LTE	467	0.52%
T-Mobile 1900 MHz GSM	4	1052.26	150.0	7.30	1900 MHz GSM	1000	0.73%
T-Mobile 1900 MHz LTE	2	2104.51	150.0	7.30	1900 MHz LTE	1000	0.73%
T-Mobile 2500 MHz LTE	1	6444.38	150.0	11.17	2500 MHz LTE	1000	1.12%
T-Mobile 2500 MHz NR	1	6444.38	150.0	11.17	2500 MHz NR	1000	1.12%
						Total:	6.22%

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	6.22%
Sector B:	6.22%
Sector C:	6.22%
T-Mobile Maximum MPE % (Sector A):	6.22%
Site Total:	27.77%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **27.77%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.